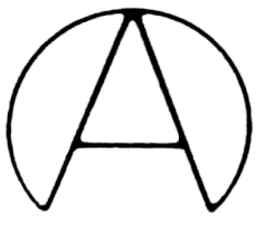
Pushbutton Fantasies

Critical Perspectives on Videotex and Information Technology

VINCENT MOSCO



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Preface

This is a book about fantasies and their transformation. Over the past three decades, a collection of social scientists, marketing executives, technology buffs, and self-proclaimed futurologists have sung the praises of communication and information technologies. The same cornucopia that brought us light bulbs and Fords now offers computers, communication satellites, coaxial cable, and television. According to the dominant fantasy, combinations of these will offer masses of people the opportunity to learn, shop, bank, work, play, and generally enrich their lives without ever leaving the living room.

Pushbutton Fantasies takes a detailed, critical look at these specific forecasts, as well as at the broader perspectives or, in John Berger's phrase, *ways of seeing*, that shape popular understanding—promote the fantasy—of a communications revolution. These perspectives carry a number of labels. *Pushbutton Fantasies* dissects four: *post-industrialism* in the workplace, *mass society* in the home, *pluralism* in government, and *developmentalism* in international relations.

Over the past ten years a resurgence in critical social theory has challenged long-dominant ways of seeing in sociology, political science, economics, history, and anthropology.* These challenges are only now touching

*For a discussion of this resurgence, see Bertell Ollman and Edward Vernoff (Eds.), *The Left Academy: Marxist Scholarship on American Campuses* (New York: McGraw-Hill, 1982).

communications studies. Unfortunately, the blind spot that Smythe identified in the application of critical theory to communications research still prevails.** *Pushbutton Fantasies* makes closer the connection between these new ways of seeing the workplace, the home, the state, and the international area *and* the growth in the means of communication.

This book is a deepening of work that I have been pursuing over the past three years and reported in several research papers.*** *Pushbutton Fantasies* extends this theoretical work by applying these new ways of seeing to the development of information technology and, more specifically, videotex. Videotex combines television, computers, and, in some applications, telephone or coaxial cable lines to produce a powerful information/communication system. In fact, one reason for choosing videotex is just this: It draws on the major new developments in microelectronics for information processing and communication. Moreover, businesses, governments, and people throughout the world are involved in some aspect of videotex. Videotex devices that bring newspapers and games into the American home are produced by low wage workers in Southeast Asian electronics factories. The American viewer and the microchip worker find that their lives are linked in another way: Each has his or her work monitored by devices that bear a striking similarity to videotex. Finally, and perhaps more importantly, videotex promises to evolve into a mass medium. Of course, the gap between promise and reality may never be covered. Nevertheless, the potential for mass market penetration, as evidenced by the investments of such communications giants as CBS and AT&T, makes videotex an excellent means to explore the social relations of communication and information.

Several people and organizations have provided support in the evolution of this project. I owe a great deal to Andrew Herman, my close friend, student, and co-author on a number of occasions. Andrew made a substantial contribution to the chapters on the work process and the state. Without his friendship, intellectual contribution, and moral support, this book would not have been possible. I thank Eileen Mahoney, my good friend and research assistant at Temple University. Eileen made numerous substantive and editorial contributions which enrich this book. In addition to Eileen I would like to express appreciation to my research assistants at Georgetown Univer-

**Dallas W. Smythe, "Communications: Blindspot of Western Marxism," *Canadian Journal of Social and Political Theory* (Fall, 1977), 1–27.

***"Communication, Domination, and Resistance," with Andrew Herman, *Media, Culture and Society*, II (1980), 351–365. "Radical Social Theory and the Communications Revolution," with Andrew Herman, in *Communication and Social Structure*, ed. by E.G. McAnany, N. Janus, and J. Schnitman (New York: Praeger, 1981). "Critical Theory and Electronic Media," with Andrew Herman, *Theory and Society*, X (1981), 869–896. "Government and Media: Visions and Revisions," *Humanity and Society*, V (1981), 201–215.

sity, Stan de Turris, Ruth Rossman, and Richard Savignano, who contributed to various stages of the work. In addition to these people, thanks must go to the following people whose advice and comments have found their way into much of this book: J.W. Freiberg, Avery Gordon, Timothy Haight, Catherine McKercher, Daniel Schiller, Herbert Schiller, Dallas Smythe, and T.R. Young. To Zilan Bass I owe a special thanks for helping me to complete the bibliography. A research grant from Georgetown University and a fellowship from the National Academy of Sciences helped me to complete this project. Finally, I want to thank my students, the most valuable critics an author can have.

VINCENT MOSCO
March 29, 1982

Electronic Futures.
The Good. The Bad.
The Indifferent.

Progress is Our Most Important Product

An American family returns late on Sunday night from a summer vacation. Although the family has been gone for a week, the lights in their home have just been turned on automatically, and the air conditioner has begun to cool the rooms to a comfortable 75 degrees.

As they unpack, one family member checks the "electronic mailbox" for important messages, while another orders dinner from one of the several local restaurants whose menus appear on the television screen.

The auto repair shop has been closed all weekend, but Dad makes an appointment to have the car serviced the next morning. Although the local newspaper hasn't been delivered, the family skims the headlines and reads entire stories by spending a few more minutes in front of the tube. Even the day's baseball scores flash on the screen at the press of a button.[1]

This is the very familiar story of a future society that technological progress makes rich. Earlier cornucopias may have overflowed with food, automobiles, or houses rather than telecommunications marvels. But the

story is essentially the same. Human invention, the practical application of scientific principle, will surround us with limitless possibilities. We can reach out to "touch someone" anywhere in the world; we can shape our individual environment to meet our precise desires. It gives us light, cools our bodies, and tells us who won today's ball games.

The only wrinkle in this vision of the future, as the authors enthusiastically tell us, is that this is not all that visionary:

> Is this a science fiction writer's vision of family life in the year 2001?
>
> Not any more.
>
> It is becoming reality in Coral Gables, Fla., where 200 families are starting to use Viewdata, a new technology which could transform today's home into tomorrow's electronic information center.[2]

Viewdata, or videotex as it is more commonly known, essentially links the familiar telephone, television, and computer to deliver page after page of words and pictures. Those 200 families in Coral Gables and their counterparts in Los Angeles, Austin, Velizy, and London where experimental and commercial systems operate, can bank, shop, get newspapers, play games, and, according to videotex supporters, control their environment more effectively than people have ever been able to in history.

Such visions are a welcome sight to many who today see their lives rapidly unravelling out of control. Visions of instantaneous everything take us back to the expansionary period of the post-World War II era, to a time when people had houses and cars and babies. It was a time when General Electric reminded us regularly that "Progress is Our Most Important Product" and we read stories of seemingly endless growth. But these scenarios now have a rather tinny quality. Welcome as they are to many, they sound all too similar to those that once proclaimed how nuclear fission and fusion power would lead us to Utopia.

Video Dystopia

There is another altogether different vision of the electronic future which George Orwell, writing in the 1940s, chooses to introduce us to the world of 1984:

> Inside the flat a fruity voice was reading out a list of figures which had something to do with the production of pig iron. The voice came from an oblong metal plaque like a dulled mirror which formed part of the surface of the right-hand wall. Winston turned a switch and the voice

sank somewhat, though the words were still distinguishable. The instrument (the telescreen, it was called) could be dimmed, but there was no way of shutting it off completely. . . . The telescreen received and transmitted simultaneously. Any sound that Winston made, above the level of a very low whisper, would be picked up by it; moreover, so long as he remained within the field of vision which the metal placque commanded, he could be seen as well as heard. . . . You had to live—did live, from habit that became instinct—in the assumption that every sound you made was overheard, and, except in darkness, every movement scrutinized.[3]

This is dystopia, a far cry from teleshopping or playing video games in Coral Gables, Florida. Nevertheless, the technology is the same. Orwell's telescreen is an advanced videotex device. It dispenses huge quantities of information and allows the "user" to "interface" with the controlling node in the network. Orwell's vision is the graphic expression of those who fear that the use of videotex today, to help us shop and bank, to monitor our homes for fire and theft, is inviting the end of privacy, of personal and social autonomy.

Orwell's vision also has the equivalent of a Coral Gables reality, though on a much larger scale and far from experimental. Consider the National Security Agency, a U.S. government agency that operates a global system of computers, satellites for communication and remote sensing, and other sophisticated communications instruments that make the telescreen look like an abacus. This is how one analyst describes the NSA:

> The NSA employs 24,000 at its headquarters in Fort Meade, Maryland. It has a budget twice as big as the CIA's. It's activities include occasional burglaries at foreign embassies, for the purpose of stealing code books and encryption machines. . . . The agency is an old hand at domestic surveillance. In Operation SHAMROCK, beginning in the early 1950s, Western Union, RCA Global, and ITT World helped the NSA intercept and copy all international telegrams originating in the U.S. In the 1960s, at the request of the Pentagon, the NSA initiated Operation MINARET, in which the agency intercepted all international electronic radio and telephone conversations with one end in the United States, keeping an ear open for radical callers on its watch list of "security risks." . . . That sort of thing supposedly was discontinued in the mid-1970s, but the agency's new HARVEST computers may have given domestic intelligence a new lease on life.[4]

One reporter likened the NSA to a giant vacuum cleaner that sucks out of the sky everything from phone calls to computer data transmissions.[5] More recently, the New York Times has reported on the activities of another

highly secret government agency, the National Reconnaissance Office. The NRO uses its telecommunications system to spy on demonstrators, dissidents, and activists of all sorts. According to the Times:

> The mission of the office, according to scarce reports that have arisen over the years, is to oversee the development and operation of spy satellites used to photograph foreign territory and to monitor international communications.
>
> Its budget, which is hidden in Air Force operations, exceeds $2 billion a year, according to Government officials. By comparison, the budget of the Central Intelligence Agency is about $1 billion.
>
> Others in and out of the Government believe that the office has used its secret status to shield past abuses and a history of major cost overruns. Specifically, documents released by the Central Intelligence Agency under the Freedom of Information Act disclosed that satellites operated by the reconnaissance office were used in the late 1960s and early 1970s to photograph antiwar demonstrations and urban riots, in an apparent effort to determine crowd size and the activity involved.[6]

This is more chilling than the telescreen. For not only can't we turn off the "telescreens" of the NSA and NRO, most people don't even know that they exist.

The Non-Scenario: Interdependence for Better or Worse

While both utopian and nightmarish visions are familiar to us, such scenarios are less and less common today. In their place we find increasing examples of what can only be viewed as the "non-scenario." The non-scenario is not so much a story about what will happen if technology is permitted to develop. Rather, it juxtaposes both good and bad possibilities in paired alternatives. When asked what the growth in communications technology has in store for us, the non-scenario answers: "It may be good, or it may be bad." It may be instant access to the Library of Congress, the Paramount Pictures film vault or it may be telescreens observing our every move. The description of a major National Science Foundation funded research project on the impact of videotex in the U.S. offers a precise example of the non-scenario. According to John Tydeman and Laurence Zwimpfer of the U.S. Institute for the Future:

> . . . it is possible to develop a number of general societal themes that provide some insight into alternative feasible videotex futures:

1. Societal structure: New rural society or the electronic hermit.

2. Societal decision making: Real-time participation or Dr. Strangelove democracy.

3. Consumer Choice: unlimited choice or electronic Babel.

4. Equity and access: Information equalizer or the poor get poorer.

5. Socioeconomic organization: Mass-produced individuality in a competitive market or RAMJAC (America inc.).

6. Financial structure: Cashless society or Big Brother.[7]

Their description of Future Alternative number 4 (on equity and access) conveys the full flavor of the non-scenario:

> 4. *Equity and access:* Information equalizer or the poor get poorer. Close to 98% of American households have both a TV and a telephone, so there is a very real possibility that a videotex system, even of low quality and poor graphics, could be in virtually every home within 20 years, especially if placed by telephone companies or offered as part of cable franchises. The development of simple, user-friendly protocols offers everyone an equal access to information services. Information retrieval and brokerage services are offered as subsidies to the disadvantaged.
>
> BUT
>
> The cost of information services and the sophistication necessary to effectively use a menu-search-based system impede successful use by a large segment of the population. Manual, visual, and cognitive skills needed to operate even electronic keyboards and a charge-per-access time mitigate against the slow, the uneducated, and in general the poor.[8]

A variation on the either/or perspective is the emphasis on a single word that is used to capture the essential feature of the society that information technologies such as videotex are making possible. A favorite such word is "interdependence." This means that new developments in communications—satellites, computers, video display devices—are tying people more closely together than ever. But does "tied together" mean to be equal parts of the same congenial community or bound together in mutually destructive hostility? Typically, the use of interdependence implies the potential for either richer social interaction or mutual destruction. For example, when the Director of the Harvard University Program on Information

Resources Policy refers to the greater global interdependence that satellites bring, he sees two possibilities. Such satellites create beneficial interdependence by making possible the reconnaissance necessary to insure compliance with SALT, the Strategic Arms Limitation Agreements; but on the other hand, these satellites are integral to military institutions that have the potential to destroy the world several times over. In a nutshell, communications means interdependence which can bring global harmony or exterminism.[9]

With similar ambiguity, Harvard sociologist Daniel Bell refers to the rise of the Post-Industrial Society.[10] But does this tell us any more than to say that the industrial revolution began the Post-Agricultural Society? Moreover, Bell describes the role of telecommunications, including videotex, for this new society in an article titled "Communications Technology: For Better or For Worse."[11] It might be good. It might be bad. But more to the point, in the spirit of the marriage vow, we have no choice. The Post-Industrial Society, whatever it means, is something we must accept, through thick and thin, for better or worse.

The Social Organism vs. Who Gets What

These three perspectives—the good, the bad, the indifferent—differ strikingly in their views of how information technologies affect society. But they share an underlying assumption that pervades most thinking on this issue. *They view society as a totality.* Society is a total entity that is affected for better or worse by the growth of communications technology. This is a view reminiscent of the organic theories of society developed in the work of Herbert Spencer and Emile Durkheim.[12] For these early sociologists, society is a reality *sui generis*—an organism, the sum of whose parts is inadequate to describe the whole. The significance of this view, beyond the profound impact that it had on the growth of American social science, is that it reifies social life, and thereby obscures the distributional consequences of technological change. To say that technology affects society is more than an intellectual shorthand. It glosses over the reality that individuals and organizations use technologies which affect society *only through their differential affects on individuals, organizations, and classes within that society.*

A sensitivity to the distributional consequences of technological change raises important questions about traditional scenarios and advances our thinking about the social impacts of new technologies like videotex. To their credit, both pie-in-the-sky optimism and nightmarish pessimism make explicit arguments based on deeply felt intellectual and moral concerns. They

invite the contention that makes for strong discussion. This characteristic gives such perspectives an engaging value in spite of a general failure to address who wins and loses. The contemporary non-scenario lacks both the engaging quality of a *1984* and a sensitivity to distributional consequences.

Consider the themes offered in the Institute for the Future analysis. They are intended to suggest the positive and negative social impacts inherent in the development of videotex. The most concrete description of alternatives and one that comes closest to addressing distributional issues is number 4—*Equity and access: Information equalizer or the poor get poorer*. The optimistic side is obviously the one in which videotex becomes the information equalizer; the negative, the one in which the poor get poorer. But clearer thinking about distributional consequences leads us to question these assertions.

In the optimistic picture, people get equal access to information services, including information subsidies for the disadvantaged. Can one argue with equal access and subsidies? Certainly, if people are given equal access and subsidies to massive amounts of explicitly commercial messages and to commercials masquerading as information (see Chapter Four on the "informerical"). Equity here simply means wider access to information that reinforces, if not deepens, existing divisions between those who control the production and distribution of information and products and those who do not. This scenario may indeed be optimistic for some, but not at all for those on the receiving end. On the other hand, the "poor get poorer" scenario may indeed be a positive one for the small segment of the population profiting from such services, at least in the short run. In the long run, the growing gap in resource distribution, including information resources, between rich and poor, may have revolutionary consequences that undermine elite-dominated information systems. A sensitivity to the question of who controls the production and distribution of information—that is, to the consequences for people in different strata of society—would advance simplistic dichotomies between what constitutes a positive and negative future.

The same holds true for references to the growing global and societal interdependence that information technologies are said to be advancing. Interdependence also glosses over the distributional questions. Is this interdependence among equals or that between master and slave? It is far more important to know the nature of the dependency relationship than simply to assert that people depend on one another more than ever. Or as the comic strip character says when asked how he feels about the "trickle down" impact of the Reagan tax cut proposals: "It depends on whether I'm the trickler or the tricklee." Before we are wedded to information technology, for better or worse, we need to know much more about the nature of the relationship.

Who Gets What in Videotex and Information Technology

This book is about the different consequences that new developments in information technology are having for different segments of society. Consequently, it is not about whether such technology will be good or bad *for society*. Rather, the book acknowledges that those who control the production and use of information technology will shape it in ways that are good for some and destructive for others. More concretely, some will make money, have more control over their work lives, and simply *know* more as a result of their ability to make use of videotex and information technology. On the other hand, for some, the revolution in communications means degrading jobs consisting of long hours in front of constantly monitored video display terminals, or no job at all. For those unable to afford what it takes to buy information or buy privacy, the new services that information technologies provide will simply mean a loss of control over the resources and decisions that affect their lives.

The information technologies, whose use is realizing these substantial impacts, are based on accelerating advances in electronics and aerospace technology. Miniature computers for processing information, satellites and cables for distributing it, and video display devices for presentation have each gone through several generations of change over the last three decades. Of equal importance is the growing integration of these technologies into complex networks that process and distribute rapidly enormous quantities of information.

One result of this dual process of evolution and integration is videotex. Videotex links television and telephone with computers to deliver words, numbers, and graphics electronically. The term videotex refers typically to information-delivery by wire, through telephone lines or coaxial cable. A broadcast version of this technology, one that distributes information over the air, as with ordinary television, rather than by wire, as with the telephone or cable television system, is known as teletext. Both videotex and teletext have generated considerable worldwide attention. Special interest is directed to videotex because, like the telephone, it is a wired *interactive* service. By connecting two of the most common household devices, the telephone and the television, together with some computer hardware, individuals can have access to large amounts of information. It promises shopping, banking, learning, and even earning a living at home. But for those unfortunate enough to have to *go* to work, videotex systems are becoming a pervasive feature of office life. As of June 1981, 40% of all travel agents in Britain subscribed to the Prestel videotex system. Many feel that videotex is likely to revolutionize our lives as much as did the ordinary broadcast televi-

sion, before which the average American (or Japanese) spends about one fourth of his/her waking hours.

It is the evolutionary connection to the television that makes videotex an especially interesting communications system. For like television, videotex and its teletext broadcast version promise to be *mass* media. Over 98% of all U.S. households have telephones and television sets. It would not be a very complex procedure to turn these common devices into a videotex system. But videotex is much more than television or even interactive cable television. Videotex can provide enormous amounts of information as well as its other interactive services in both the home and office. So videotex promises to be a mass-based phenomenon with the combined attention-grabbing power and pervasiveness of television and the telephone. The mass potential of videotex makes it all the more important to focus on the distributional consequences. In order to achieve this focus, we need to pierce through the theories, visions, or *fantasies* that have until recently provided the means for understanding the growth of communications technologies. These fantasies—pluralism, mass society, post-industrialism, and developmentalism—are challenged by critical perspectives that deepen our understanding of the social relations of videotex.

Chapter Two "Electronic Visions, Corporate Revisions, and Deepening Divisions" begins this critique by examining the growth of communications technologies in the context of a corporate state system that shapes their distribution and use. Specifically, it assesses a long-dominant U.S. view that decisions about the production, distribution, and use of technologies, including communications, are made in a *pluralist* marketplace in which equal forces contend for decision-making power. The chapter considers the analytical and political consequences of two alternatives to this dominant conservative fantasy. An *instrumental* perspective challenges the pluralist view that government is the impartial arbiter—the neutral representative of the many interest groups in the U.S. It does so by showing how a dominant class, working through multinational corporations uses the state to control vital resources such as communications for their own profit. A *structural* view extends this challenge by examining how the communications arena reveals vital functional connections, for accumulation, legitimation, and repression, between the state and private capital. The chapter concludes by examining the practical political implications of these different perspectives on the communications power structure. According to former U.S. Congressman Lionel van Deerlin, whose subcommittee actively promoted legislation guaranteeing a corporate-controlled communications system, new communications technologies will lead to "a revolution in the United States roughly equivalent to the Industrial Revolution of the nineteenth century."[13] Can these alternative theoretical visions suggest political strategies

to make the next revolution a democratic one in which the public enjoys the fullest possible control over basic social choices?

Chapter Three situates videotex within this political economy of communications. What is videotex? Who is supporting its development? What have been its major applications? What is its significance and future prospects? This chapter emphasizes the first three questions and introduces the themes of significance and prospects which are treated in detail in subsequent chapters.

The question of "What is videotex?" is not as easily answered as, for example, "What is television?" For, as noted earlier, videotex is not a single device, but a system that integrates various technologies in a variety of ways. Fundamentally, videotex integrates the computer, television, and telephone into an interactive system of information retrieval. But there are various types of computers and television systems that make for a variety of potential videotex systems. Furthermore, a cognate service—teletext—eliminates the telephone line and opens up the opportunity for some degree of interactive information retrieval of data transmitted over the air. Chapter Three sorts out the various types of videotex/teletext systems with an eye to what is perhaps the most substantial defining characteristic. This characteristic is highlighted in the French description of its national program in *telematique:*

> Exploitation of advanced technology creating the twin benefits of low-cost and MASS MARKETS (emphasis in original).[14]

Videotex is uniquely different from earlier interactive computer systems in that it represents a conscious effort to exploit a mass market. The ability of videotex to deliver large numbers of potential customers, well-defined by demographic characteristics, to advertisers, gives videotex an importance that rivals the introduction of broadcast television.

It is the potential mass circulation of videotex systems that helps to explain who is advancing its development. Chapter Three examines the major corporate and governmental institutions that represent the power behind this video vision. To do this, we consider the two major bases for videotex development: North America and Western Europe. In North America we find familiar names like AT&T, CBS, and Time Inc. heavily involved in the U.S. end of videotex development. AT&T is playing a particularly important role as it seeks to shape the development of videotex standards without appearing to offer specific systems that might incur legal and regulatory problems for Bell. Canada has made the development of its Telidon videotex system the major component of its government-supported effort to acquire a niche in the global, particularly U.S., market. Telidon's ability to reproduce enhanced graphics makes it an important tool for those

interested in using videotex to attract advertisers. For the latter are particularly sensitive to the quality with which eye-catching pictures and corporate logos can be presented. The British and French systems are the models for Western European videotex development. The British Prestel service, which reached 13,000 subscribers by October 1981, is the only substantial commercial videotex operation in the world. Moreover, 450,000 people make regular use of several commercial teletext services in Britain. The French industry/government *telematique* program lags behind the British in commercial development, but is in proposal form the most ambitious videotex project to date. The French hope to bring an electronic phone directory, electronic mail, and related services into mass distribution throughout the country within the next 15 years.

Following this review of videotex systems, Chapter Four takes up the theme of videotex as a mass medium. "Home Sweet Marketplace" begins with a critique of the dominant theoretical fantasy on the relationship between communications and the private sphere of leisure—the *mass society* perspective. It deepens this critique by showing how videotex is an extension of capitalist market penetration into the home that began at the turn of this century. At that time, mass marketing grew as a successful means to overcome the tendency to overproduction in capitalist economies. The rise of commercial media, of popular newspapers, magazines, radio, and television helped to produce a consumer society that absorbs the overflow of commodities, though not without contradictions. Videotex deepens this penetration of industrial capitalism into the home. Chapter Four finds that commercial considerations provide the overwhelming force behind the development of videotex systems. Advertisers are particularly attracted to the videotex capacity to blur the distinction between information and advertisement, and to allow the interacting user to participate in his or her own commercialization (hence, the *informercial*). Closely connected to the marketing function is the growth of shopping, banking, and other commercial services that videotex makes possible. By shifting what are essentially public functions to the privacy of the home, videotex opens the way to further isolation of the individual consumer and further erosion of community and public space.

This process of commercialization extends as well to the so-called information functions of videotex. Chapter Four considers the transformation of news companies from newspaper producers to information providers to self-described "influence sellers." The ability of videotex to measure its audience and record transactions, all of which add to the rationalization of the capitalist marketplace, extends to the transformation of information into a commodity. Each frame of a Prestel information file has a charge written on it. Each piece of information bears a price. Chapter Four considers the differential consequences of this videotex equivalent of libraries with cash

registers. Finally, the insinuation of videotex into the private sphere not only degrades that sphere, it portends the further erosion of privacy. The "everything bears a price" philosophy becomes the reason to record every transaction. Chapter Four concludes by considering the implications of the demise of both a public and a private sphere of life in favor of the *audience commodity*.

We read more and more these days about the declining productivity of capitalist economies. Corporate executives, government officials, even the heads of major labor unions worry about the ability of Western societies to meet stiffening competition in increasingly important world markets. It is within this context of deepening economic crisis that communications technologies in general and videotex in particular take on great significance. For the growth and integration of communications technologies are expected to ameliorate, if not overcome, that crisis. Chapter Four suggests how this is to be accomplished in the home. Videotex is a marketing tool that will stimulate demand for products. Chapter Five addresses the supply side. It does so by presenting the major arguments that proponents make to support the contention that communications technologies such as videotex will be economic angels, if not saviors, leading the way to the *post-industrial* society. First, and most obviously, videotex promises an expansion of the electronics, information, and entertainment industries. Videotex will stimulate the demand for everything from silicon chips to movies. But less obvious, though more important because more encompassing, is the view that information technologies such as videotex will make a substantial contribution to the productivity of industries in which the informational activity is not an end in itself. Rather, it is an input to some other productive process—the refining of crude oil, for example.

Chapter Five critically assesses these claims. It does so by considering more than the strict economic definition of productivity. For an enterprise may grow in productivity, as have banks and the Long Lines Division of the Bell System, but with fewer and fewer workers enjoying the benefits of that productivity because videotex, in conjunction with other communications technologies, has put them out of work. Furthermore, for those fortunate enough to retain their jobs, there is the prospect of long hours of drudgery before a videotex machine. Following the basic theme of considering the distributional consequences of videotex, Chapter Five examines the impact on employment and the quality of work. Videotex may contribute to a productive, Post-Industrial Information Society for some, but for many, particularly women, it means an intensified version of Henry Ford's assembly line, now located in the office.

Chapter Six extends the arguments, developed in the previous two chapters, to the international arena. For it is here that communications

technologies are having an especially profound economic and cultural impact. Videotex is one among a number of products of an intensifying international division of labor that belies the long-dominant *developmentalist* view of global communications. Research and development takes place in core industrial countries, the basic components are manufactured in dependent periphery societies—Malaysia for example (site of the U.S.-sponsored Miss Free Trade Zone competition)—and assembly is completed in semi-periphery societies such as Nigeria and Brazil. Cheap labor outside the core fattens the profit flow to core societies and disciplines the labor force in the periphery.

Chapter Six situates videotex within the global political economy. It does so by tracing the process of producing the communications version of Ford's "World Car." Moreover, it examines the significance of the videotex commodity, information, for maintaining, if not strengthening, the control of core societies over the world system. Of particular significance in this regard is the development of international videotex services. In July 1981 British Telecom launched Prestel International, a commercial service with access to data from such elite information sources as The Economist, Lloyds of London Press, and Dow Jones. Moreover, for an elite class of Private Closed User Groups, companies that include Chase Manhattan, Manufacturers Hanover, Rank Xerox and others, Prestel International provides a global electronic newsletter service. Chapter Six considers the impact of such developments on the global distribution of information. Networks such as Prestel mean that societies that have broken the bonds of political colonialism, must now confront the more subtle, though equally substantial force of economic and information domination.

In his provocatively titled and equally stimulating book *The Promise of the Coming Dark Age*, L.S. Stavrianos looks at the vast expanse of contemporary society, and sees a depressing concrete landscape.[15] But on closer inspection, Stavrianos suggests, we can find green shoots of grass growing in spots through the concrete. These green shoots are for him the promise almost hidden in the cracks of the Dark Age that we appear to have entered. These are the people and the organizations working to oppose and build alternatives to the seemingly irrepressible force of global capitalism. These are people working to realize the promise of democracy: equality and the fullest possible collective participation in the decisions that affect our lives.

Chapter Seven considers what may be the cracks in the concrete and the green shoots of the communications world. Drawing on the structural analysis of state-media relations presented in Chapter Two, we consider the cracks or contradictions in the development of videotex that appear in the workplace, the home, and in global relations. From contradictions and cracks, we turn to opposition and green shoots. Some suggest that the in-

teractive capacity and declining costs of videotex make the technology itself an instrument of resistance. From the one-way television and the huge expensive computer of the past three decades, we move to interactive video and microcomputers. Chapter Seven assesses this argument and considers the efforts of groups seeking to take advantage of what the technology makes possible. This encompasses a number of dimensions. One is the actual creation of alternatives to the dominant elite-based, commercially-saturated, proposed, and actual videotex systems. Another is the effort to take advantage of structural contradictions in state-media complexes by influencing the political conditions governing the use of videotex. These include the establishment of explicit social policies to promote the democratic use of videotex and information technology.

Chapter Seven concludes by situating these efforts within the wider context of democratic attempts to change domestic and global information orders. What are the prospects for a new order?

Footnotes

[1]Harry M. Shooshan and Charles L. Jackson, "The Battle to Control What You Will Get From Your Computer," *Washington Post*, August 24, 1980, p. C4.

[2]*Ibid.*

[3]George Orwell, *1984*, New York: Harcourt, Brace & World, pp. 5–6.

[4]Loring Wirbel, "Somebody is Listening: There's a Computer on the Line," *The Progressive*, November 16, 1980, p. 17.

[5]"Telecommunications Eavesdropping by NSA on Private Messages Alleged," *Science*, September 8, 1977.

[6]Philip Taubman, "Secrecy of U.S. Reconnaissance Office is Challenged," *The New York Times*, March 1, 1981, p. 12.

[7]John Tydeman and Laurence Zwimpfer, "Videotex in the United States—Toward Information Diversity," *Videotex '81*, Middlesex, UK: Online Conferences Ltd., 1981, pp. 348–350.

[8]*Ibid.*, p. 349.

[9]Anthony Oettinger, "Information Resources: Knowledge and Power in the 21st Century," *Science*, July 4, 1980, pp. 191–198.

[10]Daniel Bell, *The Coming of Post-Industrial Society*, New York: Basic, 1973.

[11]Daniel Bell, "Communications Technology: For Better or For Worse," *Harvard Business Review*, May 1979, pp. 21–22, 26, 28, 32, 36, 40–41.

[12]For a good analysis of this perspective, see Irving M. Zeitlin, *Ideology and the Development of Sociological Theory*, 2nd ed., Englewood Cliffs, NJ: Prentice-Hall, 1981.

[13]Mel Friedman, "A New Communications Act: The Debate Begins," *Columbia Journalism Review*, September–October, 1978, p. 40.

[14]*Intelmatique*, September 1980, p. 2.

[15]L.S. Stavrianos, *The Promise of the Coming Dark Age*, San Francisco, CA: W.H. Freeman, 1976.

2

Electronic Visions. Corporate Revisions. Deepening Divisions.

> On reflection I think it is a very admirable compromise. . . What it does is put the enterprise and initiative of business, plus the government, in bed together, and if we do not start doing that sort of thing in this country, we are going to be in a very sad situation.[1]
>
> Newton Minow, former Chairman
> Federal Communications Commission

Newton Minow was ahead of his time. His support for the Communications Satellite Corporation made him a forefather of the contemporary corporate state system. For Comsat is just the sort of institution that exemplifies the state's explicit effort to underwrite private profit with taxpayers' dollars. Comsat was subsidized by the government's military-space program and supported by the company's monopoly status as the U.S. "chosen instrument" in global satellite communications. Under the euphemism *reindustrialization* and the misnomer *deregulation*, the U.S. and other core capitalist governments are advancing a version of Minow's conjugal plea—the *corporate state*. In order to understand the place of videotex in contemporary society, we need to examine the growth of information technologies in the context of this corporate state system that shapes their production, distribution, and use.

Technological Growth in Communications

The close relationship between the U.S. government, particularly the military, and private institutions, particularly business, is evident from the earliest days of the computer industry. The Ballistic Research Laboratories of the Army Ordinance Corps sponsored development of the first computer, ENIAC, the Electronic Numerical Integrator and Computer, in 1943. The first intended application of the computer was the calculation of trajectories and firing tables for artillery and bombs. Four years later the directors of the ENIAC project, Eckert and Mauchly, left the University of Pennsylvania to begin work on UNIVAC, the Universal Automatic Computer. UNIVAC was the first commercial computer. Its first customer was the National Bureau of Standards which bought UNIVAC to analyze the 1950 census.

The earliest computers were limited by their reliance on vacuum tubes. ENIAC used 18,000 and apparently would cause power shortages in the area around the University of Pennsylvania whenever it was in use. But by the 1950s, development of the transistor made vacuum tubes obsolete. The solid-state computer with about 500,000 transistors marked the second generation of computer history. The result was a much more compact, powerful, and less expensive device that made possible a number of new applications. These included development of a storage and retrieval system built around a "telegraphic abstract." MIT's work on the *cathode ray tube*, a modified television screen, made possible the display of computer printouts. This began the link between information technologies and libraries, a link that also connects the computer to the development of videotex.

A third generation of computers, built on silicon chip integrated circuitry, enables one to wear the equivalent of ENIAC on the wrist. In fact, a medium-sized microcomputer can today perform 100,000 calculations-a-second or twenty times what ENIAC could do.[2] This concentration of computer power in ever smaller sizes is matched by the decline in cost. For example, while the functional and memory capacity of a single silicon chip has increased 10,000 fold in the past 15 years, the cost of a chip has decreased 40% a year. The cost of data processors, word processors, visual display units and micrographics has decreased 11% a year.[3]

Similar progress has occurred in distribution networks which allow for distant storage, processing, and retrieval of information. For example, advances in the development of coaxial cable have realized the interconnection of computers and video display devices that make possible multiple channel cable television systems and video conferencing. The promise of messages transmitted by laser over optical fiber cable is already beginning to improve the quantity and quality of audio, visual, and data transmission. The growth in cable distribution is matched by other transmission media—the land-based microwave tower and the communications satellite, "the microwave

tower in the sky." Advances in distribution technologies have been especially important for international communications. It was not until 1956 that the first cable capable of transmitting voice as well as telegraph signals spanned the Atlantic. Soon after came the first launch of a communications satellite. Today the world, or more accurately, important world power centers, are enmeshed in networks of cables and communications satellites. Built on these networks, the international communications business has grown 20% annually.[4]

From the first computer networks and communications satellites, the military continues to play a major role in communications growth. Today the Pentagon remains the largest user of communications in the United States. It consumes about one fourth of U.S. radio frequencies. In 1982 Congress allocated $14.5 billion for what the DOD budget calls "communications and intelligence."[5] Nevertheless, just as in the case of the development of radio, once the government had sufficiently subsidized the technology, and made it less of a risk as an investment, it was turned over to the private sector. Today business executives gush with joy over the potential of information technologies:

> Guided by electronics, powered by information, geared to the smooth effortless working of automation, the magic carpet of our free economy heads for distant and undreamed of horizons. Just going along for the ride will be the biggest thrill on earth.[6]

But just as every Emerald City has a wizard, the new world of electronics, magical as some consider it, cannot be understood without reference to the political structure that shapes its uses.

Video Visions and Revisions

Paralleling the growth in the means of communication has been a shift in our way of *seeing* this and other material changes that have marked the post-World War II era. This new way of seeing is the substantial growth, some would go as far as to suggest a rebirth, in critical social theory. New ways of conceptualizing which reject long-established conservative paradigms, but which at the same time are no longer bound by the tenets of rigid Marxist categories, have stimulated an outpouring of critical work throughout the social sciences. Harry Braverman's work on the labor process, Poulantzas on the state, Wallerstein on the world system, and Aronowitz on the private sphere have broken new ground in our way of conceptualizing or viewing work, government, international affairs, and leisure.[7]

Unfortunately, these two significant developments, in the means of

communication and in social theory, have had very little mutual impact. Many critical analysts have ignored mass media because they feel that not much need be said beyond Marx's view that media, like religion, is an opiate, that the leading ideas of an era are the ideas of the ruling class. Others who think more need be said tend to limit the sphere of communications to the mere reflection of a particular economic base. This has limited the comprehensive analysis of mass communications because it severs the cultural area from the economic. On the one hand, specialists in cultural or ideological analysis examine the "superstructure" as a sphere in which a ruling class reproduces social relations and secures hegemony. A smaller number of critical analysts reject this "culturalism," or at least concede the area to others, and concentrate on the economic infrastructure, on ownership and control of mass media. These tendencies perpetuate the base/superstructure dichotomy, what two media analysts refer to as a "singularly irrepressible" and "mechanistic" formulation.[8] This longstanding division, and often heated debate, over the primacy of the economic or ideological realms, renewed in the work of Althusser, has precluded an understanding of the social whole.[9] Concretely, it has led to a general neglect of issues that advances in information technology have made all the more pressing.

The Pluralist State and the Mass Media

One consequence of the deficiency in critical theoretical attention to the significance of mass media and information technologies is that conservative paradigms—traditional ways of seeing—continue to guide research. This is the case in spite of a growth in empirical studies led by the work of Schiller, Smythe, Murdock, Mattelart, and Nordenstreng, which severely questions the usefulness of these paradigms.[10]

Consequently, *developmentalism*, a view that links urbanization, media growth, and social progress, continues to shape the study of international communications. The influence of information technologies on the shape of the economy, on profits, productivity, and industrial relations is guided by *post-industrialism*. According to this view, such technologies increase the power of information professionals and generally liberate workers from the drudgery of traditional industrial labor. A *mass society* perspective guides most research on the media and the private sphere of leisure. The diffusion of mass culture provides a payoff for whatever subjugation the individual must endure in the workplace; but a mass society of atomized individuals is its unfortunate and unanticipated consequence.[11] *Pluralism* is the equivalent conservative paradigm in the analysis of state-media relations.

From Lazarsfeld and Merton's studies on mass media and public opinion in the 1940s to leading contemporary research in sociology and political

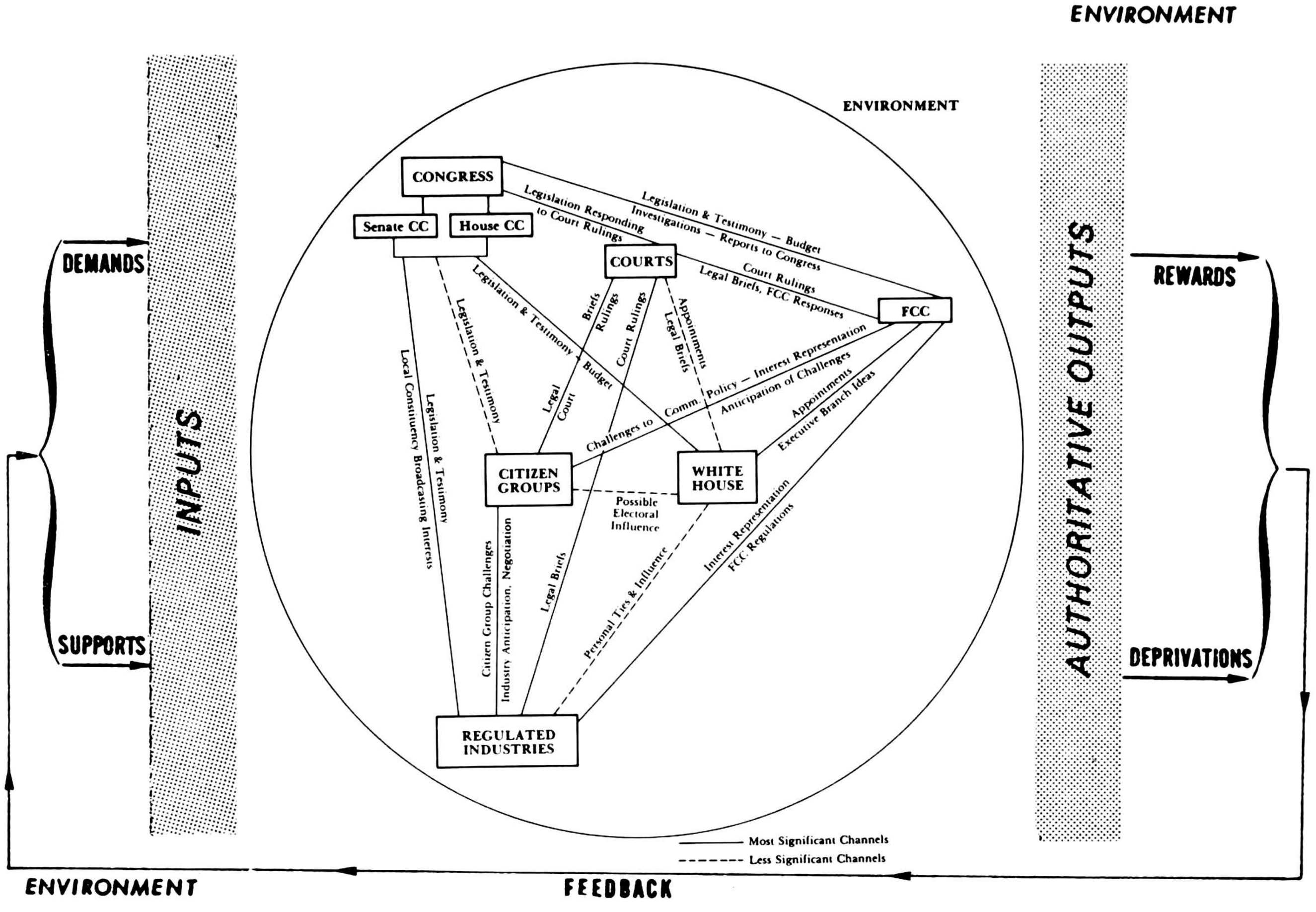
science, the pluralist perspective has shaped the research agenda on the politics of communications. This perspective views the state in advanced industrial societies as an arena of bargaining among interest groups. These groups represent all segments of society by crystallizing general public opinion about state policies into specific pressures on state agencies. Electronic media literally *mediate* relations among the public, interest groups, and the state. Common research topics derived from this view include the analysis of public opinion, and the bargaining process among interest groups that leads to the formation of general state policies, including policies on mass communications.[12] This work has important practical consequences, as anyone familiar with Gallup, Harris, and the many other opinion polling companies can well attest.

The clearest example of how a pluralist analyzes state-media relations is Krasnow and Longley's popular examination of U.S. mass media, *The Politics of Broadcast Regulation*.[13] Their research aims to explain how decisions are reached on a wide variety of broadcast industry issues such as the development of alternatives to long-dominant uses of radio and television in the U.S.

How are decisions made on these issues and in broadcasting generally? Figure 2–1 summarizes their view. It charts the process by which, using pluralist systems lingo, *inputs* (demands and supports) are formulated into decisions or *outputs* through the interaction of five major participants connected to the Federal Communications Commission—the independent regulatory authority. These five: the Congress (particularly the Commerce Committee in each House), the Courts, the White House, Citizens Groups (such as Ralph Nader's National Citizens Committee for Broadcasting), and the Regulated Industries (radio/television stations, the networks, among others) bargain among themselves and with the FCC to achieve their goals. Fundamental to the pluralist perspective that informs this research is an assumption about power. *The Politics of Broadcast Regulation* is particularly useful here because it makes explicit what is more often implicit or vaguely presented in communications research:

> Participants have limited resources insufficient to dominate the process in hierarchical fashion. In a pluralist complex. . . policy-making power tends to be somewhat divided and dissipated. Although the FCC frequently initiates policy proposals, it lacks the ability to implement them single-handedly. To prevail, it must have significant support from other participants. Similarly, none of the other five participants has hierarchical control over the policy-making process. In such a system, policy making results from the agreement—or at least the acquiescence—of all participants, not from domination by one.[14]

FIGURE 2–1. The broadcast policy process from a pluralist perspective



Source: Erwin Krasnow and Lawrence Longley, *The Politics of Broadcast Regulation*, second edition, N.Y.: St. Martins, 1978, p. 97.

Another important assumption in this and other pluralist analyses is that the government, particularly that state agency charged with formal authority (the FCC), is the actual seat of power—the repository of final decision making.

There are thus two fundamental lessons that pluralist research provides for those who want to study the politics of information technologies such as videotex:

1. Since no one group or interest can dominate, identify the plurality of interest groups, and chart their relationships;
2. Concentrate on how these relatively equal interests impinge on the state agency, e.g. the FCC, charged with formal decision-making authority.

The political implications of these research guidelines are clear. Citizens groups interested in expanding the general public's impact on the developing communications revolution can do so by participating in the established decision-making process. By directing their energies at a government regulatory body such as the FCC, citizens groups can expect to realize more of their goals than by any other means. Figure 2–1 represents the power structure and process; to gain from it, join it. Indeed, the central position of citizens groups in this pluralist diagram, and the peripheral placement of the regulated industry, would indicate a strong possibility of success. Concretely, this means such actions as challenging station license renewals, petitioning to have stations or spectrum area reserved for public uses, and pressing for programs to advance public development and application of videotex services.

The pluralist perspective renders largely unproblematic questions about the *distribution* of power and, by implication, the distribution of information resources needed to win power. But it is not entirely unproblematic. The pluralist recommendation that all with a vested interest should join in the government-mediated bargaining process has of late been tempered by admonitions from leading pluralists concerned that their analysis has been taken all too seriously. A good example of this is contained in the recent work of a pluralist founding father, Samuel Huntington. Huntington's research for the elite Trilateral Commission complains that "rising expectations" on the part of interest groups, spurred on by mass media, have led to fears about the "ungovernability" of Western societies. The actions of public interest groups have resulted in the "overload" of state agencies such as the FCC, and the breakdown of bargaining mechanisms, all of which sharpens citizen frustration and challenges the state's general legitimacy. Beyond admonishing an activist public to limit its pressure on the allegedly fragile state apparatus, Huntington suggests that the state itself and the mass

media begin to educate the general public to the limits of democracy and, perhaps more importantly, create political structures which put more distance between the state and an organized citizenry.[15]

Huntington's assessment was echoed more recently in a widely circulated article by former Counsel to President Carter, Lloyd Cutler. Writing for the publication of the elite Council on Foreign Relations, *Foreign Affairs*, Cutler bemoans the difficulty that contemporary Presidents have experienced in carrying out their electoral mandates. Cutler attributes this inability, as the title of the piece reads "To Form a Government," primarily to the proliferation of special interest groups which tax the managerial resources of the Executive Branch.[16] To solve this problem, Cutler calls for the formation of a "Blue Ribbon Panel" of elites that would recommend legislation and perhaps even constitutional changes, to curb the "excesses of democracy." Such a panel would be shielded from popular pressures that he thinks would plague a Constitutional Convention.

From Pluralism to the Process of Elite Control

Pluralists like Huntington and Cutler are not the only ones who criticize the viability of pluralism. Liberals such as Cole raise questions about just how balanced is the balanced power model of pluralist media analysis.[17] Radicals such as Schiller describe more explicitly the overwhelming power of media conglomerates such as ITT, RCA, CBS and ABC to dominate the decision-making process.[18] Moreover, media activists themselves wonder about the "join the established fray" suggestion, not because they fear with Huntington that their pressure will undermine the system, but on the contrary, because it has accomplished so little. For example, in an impressive insider examination of the media reform experience, Haight questions whether the movement has accomplished much more than providing government positions for its former leaders, who now tend to support a corporate-sponsored movement to *deregulate* mass media—one version of Huntington's cure for the "excesses of democracy."[19]

These empirical critiques of pluralist media analysis and activist concerns about the failure to expand public access and control can benefit from theoretical perspectives that organize empirical data and suggest alternative political strategies.[20] Specifically, such perspectives can provide the framework for understanding the politics of videotex.

One alternative, best known as the *instrumental* or power structure perspective, starts from the ways a dominant class uses the state to achieve its ends. The emphasis here is on *how* the capitalist power structure shapes the state's major policy decisions. Or as Ralph Miliband, a leading proponent of this view, argues:

> . . . the ruling class of capitalist society is that class which owns and controls the means of production and which is able, by virtue of the economic power conferred upon to use the state as its instrument for the domination of society.[21]

The best guide to the instrumental view is G. William Domhoff's recent work *The Powers That Be* which distinguishes among four processes essential to the maintenance of capitalist power relations: special-interest, candidate-selection, ideology, and policy-formation.[22]

The *special-interest* process consists of the means by which individuals, families, and corporations within the dominant class obtain subsidies, tax breaks, and favorable procedural rulings that are beneficial to their short-run interest. Applying this to mass communication research means following a corporation or trade association as it pursues its ends, in the U.S. case, through Congressional committees, executive departments, and regulatory agencies. Concretely, this means showing how AT&T has put together and operates its nationwide network of "grassroots" lobbying organizations; or how the National Association of Broadcasters uses its power over political image making to maintain private conglomerate control over radio and television.

The *candidate-selection* process is a major subject of pluralist media analysts. Mass media research began with the analysis of public opinion about candidates. It is now quite common to study the ritual as a "media event." Nevertheless, for all the attention to opinion sampling and the selling of candidates like packaged commodities, little attention has been directed to the institutional connections between media organizations and the political parties that are most directly involved in the selection process. The presence of so many advertising and publishing people in the Nixon Administration from Haldemann of J. Walter Thompson to Annenberg of *T.V. Guide* and of so many AT&T and IBM directors in the Carter upper echelon should prompt more attention to the institutional roles of the purveyors of information resources in candidate selection

Domhoff is clear about the need for an *ideology* process:

> Without the ideology process, a vague and amorphous public opinion—which often must be cajoled into accepting power-elite policies—might turn into a hardened class consciousness that opposed the ruling class viewpoint at every turn [p. 170].

Here Domhoff focuses on how organizations such as the Council on Foreign Relations' local committees shape a basic consensus about U.S. foreign policy and how the Committee on Economic Development, particularly through its Joint Council on Economic Education, presses the ideology of free enterprise. Domhoff convincingly suggests that organizations not nor-

mally considered communications organs are intimately tied to the ideology process. A full understanding of the process means that critical communications research must expand beyond what is officially defined to be a media organization.

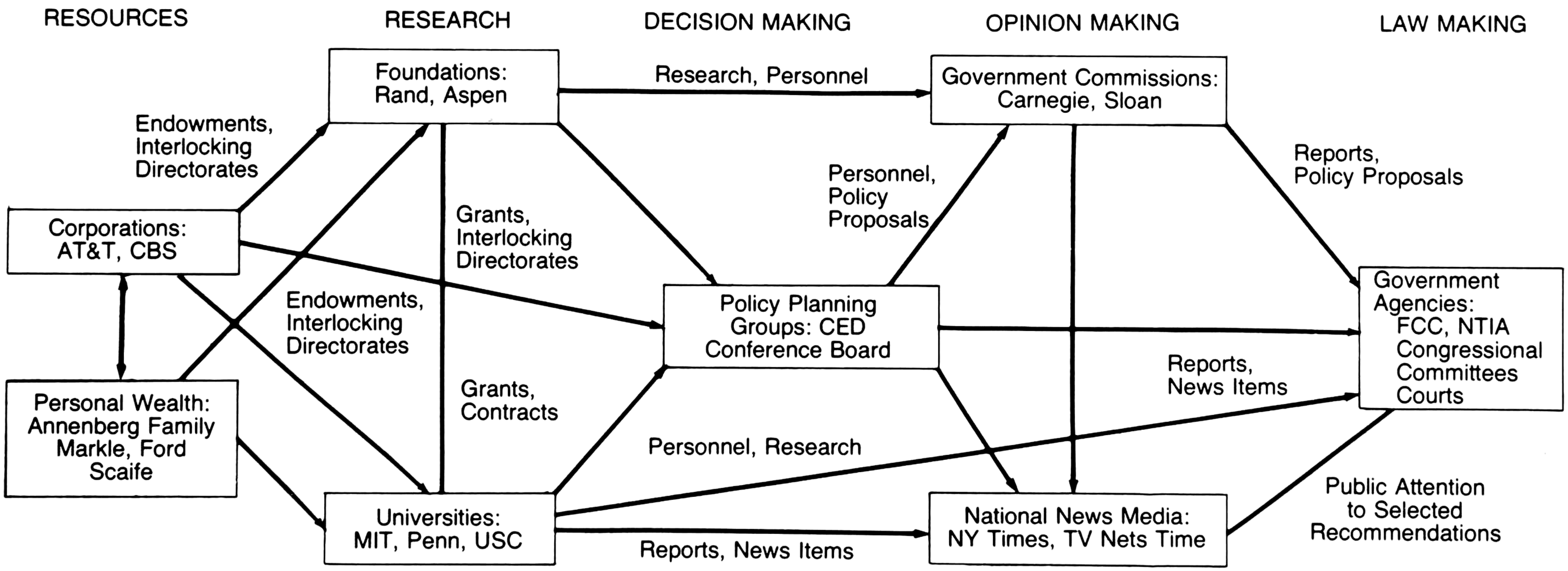
The special-interest, candidate-selection, and ideology processes offer specific alternative research strategies to the established pluralist view. However, analysis of these short-term or intermittent activities does not provide the all-encompassing model which might replace Figure 2–1. For this, we turn to Domhoff's consideration of the policy-making process or the means by which long-term strategies on broad issues are forged by a network of wealthy families, powerful corporations, prestigious law firms, and the best university expertise that money can buy. It differs from the special-interest process, the subject of most muckraking communications work, in that the latter addresses the short-term concerns of a narrow constituency and is managed by lower echelon lobbyists. The policy process rises above the day-to-day special interest struggles over such issues as an FCC ruling on commercial advertising time which would keep lobbyists intensely busy for a short time. Setting policy means issues of national significance. It means making decisions on what communications technologies to produce, by whom, for what users, and at what price. The goal of the process is to mold the partisan concerns of different elites into a coherent program that can be promoted with the stamp of objectivity, non-partisanship, and the national interest.

As Figure 2–2 indicates, Domhoff divides the policy-making process into five dimensions: *resources* fund *research* that shapes *decision making*; the latter wins popular approval through *opinion making* and is enacted by *law making*. The diagram incorporates specific examples of media-related institutions to which Domhoff's categories clearly apply.

Most resources are provided by corporations and wealthy families. In communications the former are typified by AT&T, CBS and other information companies that provide, through their connections to banks and other financial institutions, capital and directors. Figures 2–3 and 2–4 present data from a 1980 Congressional study which profiles the interconnections among U.S. corporations. The data report on direct interlocks of AT&T and CBS board members. These two companies, giants respectively in telecommunications and broadcast media, have led in the early development of videotex in the United States. In October 1981 they decided to join forces to promote a common test in Ridgewood, New Jersey. AT&T provides the hardware and CBS the programming.

According to Figure 2–3 there were 88 (101 including multiple affiliations) cases in which members of the Board of AT&T also served as a director of another company. Twenty-five of these direct interlocks involve banks (3 Citicorp, 4 Chemical, 4 Manufacturers Hanover), 3 with General Motors,

FIGURE 2–2. The communications policy formation process



Source: Adapted from "The Policy Formation Process" in G. William Domhoff, *The Powers That Be.* New York: Vintage, 1978, p. 63.

FIGURE 2–3. American Telephone and Telegraph Co. director interlocks

Direct Interlocks (88)
American Express Co.
American Express International Banking Co.
Aurrera, S.A.
Bankers Trust Company
Bankers Trust New York Corp.
Baxter Travenol Laboratories Inc.
Bell Telephone Laboratories, Inc.
Borg-Warner Corp.
Boston Edison Co.
Bristol-Myers Co.

(2)Campbell Soup Company
Carter Hawley Hale Stores Inc.
Caterpillar Tractor Co.
Chaparrosa Agri-Services, Inc.
Chase Manhattan Bank N.A.
Chase Manhattan Corp.
Chatham Manufacturing Co.

(2)Chemical Bank

(2)Chemical New York Corp.
Chrysler Corp.
Citibank N.A.

(3)Citicorp
Conoco Inc.
Continental Corp.
Continental Illinois Corporation
Continental Illinois National Bank and Trust Co. of Chicago
The Continental Insurance Companies
Corning Glass Works
Crocker National Bank
Crocker National Corp.
Culbro Corp.
Cummins Engine Company, Inc.
Deere & Company
Del Monte Corp.
E. I. Du Pont De Nemours
Eastman Kodak Co.
Exxon Corporation
Federated Department Stores, Inc.
First City Bancorporation of Texas, Inc.
First Wisconsin Trust Co.
General Foods Corp.

(3)General Motors Corp.
Hart Schaffner & Marx

(2)Hospital Corp. of America
Inland Steel Co.
G.B. Inno-BM
International Paper Co.

(2)Jewel Companies, Inc.
John Hancock Mutual Life Insurance Co.
Johnson & Johnson
Kohler Co.

(2)Kraft Inc.
Levi Strauss & Co.
Lockheed Corp.

(2)Manufacturers Hanover Corp.

(2)Manufacturers Hanover Trust Company
Media General, Inc.
Mobil Corp.
New York Stock Exchange
New York Telephone Co.
Northwestern Mutual Life Insurance Co.
Pacific Mutual Life Insurance Co.
Pacific Telephone and Telegraph Co.
Pan American Bancshares

(2)J. C. Penney Company, Inc.
Philadelphia Saving Fund Society
Prudential Insurance Co. of America
R. J. Reynolds Industries, Inc.
Rockefeller Brothers Fund, Inc.
Southern Bell Telephone and Telegraph Co.
Southern California Edison Co.
Southern Ry. Co.
State Street Bank and Trust Co.
Tenneco Inc.
Third National Corporation
Time Inc.
UAL Inc.
Union Carbide Corp
Union Pacific Corp.
United Airlines, Inc.
United California Bank
United States Steel Corp.
United States Trust Co. of N.Y.
Wachovia Bank & Trust Company, N.A.
Wachovia Corp.
Western Bancorporation
Wheelabrator-Frye Inc.
Zurn Industries, Inc.

FIGURE 2–3. (Continued)

Director Affiliations	(Board Size = 18. Number of Affiliations = 101) • Indicates Chairman. *Officer Names are Italicized.*		
Brown, Charles L.	Chemical Bank	Chemical New York Corp.	E. I. Du Pont de Nemours
	Hart Schaffner & Marx		
Carter, Edward W.	•Carter Hawley Hale Stores, Inc.	Del Monte Corp.	Lockheed Corp.
	Pacific Mutual Life Insurance Co.		Southern California Edison Co.
	United California Bank	Western Bancorporation	
Cashel, William S., Jr.	Campbell Soup Company	Manufacturers Hanover Corp.	
	Manufacturers Hanover Trust Company		Philadelphia Savings Fund Society
	Southern Bell Telephone and Telegraph Co.		
Cleary, Catherine B.	First Wisconsin Trust Co.	General Motors Corp.	Kohler Co.
	Kraft, Inc.	Northwestern Mutual Life Insurance Co.	
Davis, Archie K.	Chatham Manufacturing Co.	Media General, Inc.	Southern Ry. Co.
	Wachovia Bank & Trust Company, N.H.		Wachovia Corp.
deButts, John D.	Citicorp	General Motors Corp.	Hospital Corp. of America
	Kraft, Inc.	United States Steel Corp.	
Ellinghaus, William M.	Bankers Trust Company	Bankers Trust New York Corp.	
	Bell Telephone Laboratories, Inc.		Bristol-Myers Co.
	International Paper Co.	Pacific Telephone and Telegraph Co.	
	J. C. Penney Company, Inc.		
Evans, James H.	Citibank, N.A.	Citicorp	General Motors Corp.
	Rockefeller Brothers Fund, Inc.	•Union Pacific Corp.	
Haas, Peter E.	Crocker National Bank	Crocker National Corp.	Levi Strauss & Co.
Hanify, Edward B.	Boston Edison Co.	John Hancock Mutual Life Insurance Co.	
	State Street Bank and Trust Co.		
Hewitt, William A.	Baxter Travenol Laboratories, Inc.		Conoco Inc.
	Continental Illinois Corporation	Continental Illinois National Bank and Trust Co. of Chicago	
	•Deere & Company		
Holland, Jerome H.	Chrysler Corp.	Continental Corp.	
	The Continental Insurance Companies		Culbro Corp.
	Federated Department Stores, Inc.		General Foods Corp.
	Manufacturers Hanover Corp.	Manufacturers Hanover Trust Company	
	New York Stock Exchange	Pan American Bancshares	Union Carbide Corp.
	Zurn Industries, Inc.		
Johnson, Belton K.	Campbell Soup Company	•Chaparrosa Agri-Services, Inc.	
	First City Bancorporation of Texas, Inc.		Tenneco, Inc.
	United States Trust Co. of N.Y.		
Kreps, Juanita M.	Citicorp	Eastman Kodak Co.	J. C. Penney Company, Inc.
	R. J. Reynolds Industries, Inc.	UAL, Inc.	United Airlines, Inc.
MacNaughton, Donald S.	Exxon Corporation	•Hospital Corp. of America	Johnson & Johnson
	Prudential Insurance Co. of America		Third National Corporation
Olson, James E.	Borg-Warner Corp.	Chase Manhattan Bank N.A.	Chase Manhattan Corp.
	Jewel Companies, Inc.	New York Telephone Co.	
Perkins, Donald S.	Aurrera, S.A.	Corning Glass Works	Cummins Engine Company, Inc
	Inland Steel Co.	G.B. Inno-BM	•Jewel Companies, Inc.
	Time, Inc.		
Warner, Rawleigh, Jr.	American Express Co.	American Express International Banking Co.	
	Caterpillar Tractor Co.	Chemical Bank	Chemical New York Corp.
	•Mobil Corp.	Wheelabrator-Frye, Inc.	

Source: U.S., Congress, Senate, Committee on Governmental Affairs, *Structure of Corporate Concentration*, Vol. I, December 1980, pp. 363–364.

FIGURE 2–4. CBS Inc. director interlocks

Direct Interlocks (24)

Allied Stores Corp.
Aluminum Co. of America
Associated Dry Goods Corp.
Bausch & Lomb, Inc.
Citibank N.A.
Citicorp
Corning Glass Works
Corning International Corporation
(2)Cummins Engine Company, Inc.
Dow Corning Corp.
Freeport Minerals Company
Manufacturers Hanover Corp.
Manufacturers Hanover Trust Company
Memorex Corp.
Metropolitan Life Insurance Co.
New York Life Insurance Co.
Pan American World Airways, Inc.
Revlon, Inc.
Salomon Brothers International, Limited
Schlumberger Ltd.
The Sperry & Hutchinson Co.
Union Pacific Corp.
United States Trust Co. of N.Y.
William A. M. Burden and Co.

Direct Affiliations (Board Size = 15; Number of Affiliations = 25) • Indicates Chairman. *Officer Names are Italicized.*

Backe, John D.	No Other Boards		
Bergerac, Michel C.	Manufacturers Hanover Corp.	Manufacturers Hanover Trust Company	
	•Revlon, Inc.		
Brown, Courtney C.	Associated Dry Goods Corp.	Union Pacivic Corp.	
Burden, William A. M.	William A.M. Burden and Co.		
Gilpatric, Roswell L.	No Other Boards		
Houghton, James R.	Corning Glass Works	•Corning International Corporation	
	Dow Corning Corp.	Metropolitan Life Insurance Co.	The Sperry & Hutchinson Co.
Jankowski, Gene F.	No Other Boards		
Deborn, Donald R.	No Other Boards		
Paley, William S.	No Other Boards		
Purcell, John R.	Bausch & Lomb, Inc.		
Schacht, Henry B.	•Cummins Engine Company, Inc.		
Schmidt, Benno C.	•Freeport Minerals Company	Memorex Corp.	Schlumberger Ltd.
Thomas, Franklin A.	Allied Stors Corp.	Aluminum Co. of America	Citibank N.A.
	Citicorp	Cummins Engine Co, Inc.	New York Life Insurance Co.
Tree, Marietta	Pan American World Airways, Inc.	Salomon Brothers International, Limited	
	United States Trust Co. of N.Y.		
Yetnikoff, Walter R.	No Other Boards		

Source: U.S., Congress, Senate, Committee on Governmental Affairs, *Structure of Corporate Concentration*, Vol. I, December 1980, p. 397.

and 1 with Exxon and Mobil each. This is how the Congressional report summarizes these findings:

> AT&T's own board was highly concentrated with directors representing its major customers, suppliers, and financial institutions. Major banks at the board table of AT&T were Bankers Trust, Chase Manhattan, Chemical New York, Citicorp, Continental Illinois, Crocker National, First City Bancorp, Manufacturers Hanover, U.S. Trust, Wachovia Bank, and Western Bancorporation. Industrials seated were Exxon, Mobil, Conoco, Tenneco, General Motors, Chrysler, Caterpillar, U.S. Steel, Inland Steel, Dupont, Lockheed, Eastman Kodak, Union Carbide, and Corning Glass. Insurance companies represented on the board were Prudential, John Hancock, American Express, Continental Corp. and Pacific Mutual. Retailers were J.C. Penney, Federated Department Stores, Carter Hawley Hale Stores, Levi-Strauss and Hart Schaffner & Marx.[23]

Director interlocks are also quite extensive among firms within the telecommunications industry. According to the 1980 report:

> . . . the most interconnections in the telecommunications, information processing and office equipment group lay in the seating of multiple competitors on the boards of the largest customers, suppliers and financial institutions. For instance, directors of AT&T, IBM, Exxon, Xerox, Sperry and Eastman Kodak were all on the board of Citicorp. Directors of IBM, RCA, Sperry, Eastman Kodak and Exxon were represented on the board of Metropolitan Life. IBM, AT&T, Xerox and GTE were on the Bankers Trust board. AT&T, IBM, Eastman Kodak and Exxon were directors of Continental Illinois. AT&T, IBM, RCA and Exxon sat together on the board of Chemical New York. AT&T, IBM and GTE were all directors on Conoco. The most competitor interlocks were between AT&T and IBM.[24]

With a smaller board (15), the number of interlocking connections at CBS is less than that at AT&T. Nevertheless, Citicorp and Manufacturers Hanover are again represented with two connections each. Furthermore, analysis of CBS stock ownership reveals that the top four shareholders are financial institutions: Prudential, State Street, Bankamerica, and Morgan. These four companies control 14.5% of CBS stock.

Another Congressional report concludes by underscoring the significance of such ties:

> Thus there was substantial opportunity for direct policy discussions and potential understandings among these major competitors afforded by the device of indirect interlocking directorates. Such directorate routes

> could supply convenient conduits for possible private resolution of the public debate between monopoly and competition in the telecommunications industry.[25]

The concerns about the concentration of power through interlocking directorates that these Congressional reports raise are reinforced by a recent analysis of newspaper company interlocks. This study focused on connections among the 25 largest U.S. newspaper companies. Its findings:

> The directors of these companies, whose dailies account for more than half the circulation of all American newspapers, sit on the boards of regional, national, and multinational business corporations. Many are partners or directors of banks, insurance companies, and corporate law firms. Most serve on the boards of chambers of commerce, hospitals, universities, charities, and foundations. And some have held high federal office, or have served in state or local government. Overall, the directors are linked with powerful business organizations, not with public interest groups; with management, not labor; with well-established think tanks and charities, not their grass-roots counterparts.[26]

Table 2–5 contains 1981 data that reveals the extensive penetration of bank ownership throughout the mass media industry.[27] Comparison with a unique Congressional analysis of bank ownership published in 1972 reveals a consistent range of 10–35% bank ownership in electronic media over the 10-year period.

TABLE 2–5. Major Bank Ownership of Electronic Media Companies, 1981

Company	*Percent of Shares Held by Major Banks*
ABC	28.9
Capital Cities	28.0
CBS	27.2
General Electric	19.6
IBM	19.1
ITT	17.8
Knight-Ridder	23.9
Metromedia	15.2
RCA	17.2
Time, Inc.	13.3
Times-Mirror	18.1
Washington Post	31.9
Westinghouse	16.4
Xerox	19.4

Source: Corporate Data Exchange, Inc., *CDE Stock Ownership Directory No. 5, Fortune 500.* New York: Corporate Data Exchange, 1981. For the 1972 data see U.S. Congress, Senate Select Committee on Small Business, *The Role of Giant Corporations in the American and World Economies*, Part 4, August 1972, pp. 5294–5476.

A number of families are particularly prominent in the communications power structure. Take for example the Annenbergs whose head, Walter Annenberg, was Ambassador to Great Britain under President Nixon. The Annenbergs own Triangle Publications, a media conglomerate led by *TV Guide* as well as two elite communications schools at the University of Pennsylvania (Annenberg East) and the University of Southern California (Annenberg West). The family also provides financial support for foundations and conferences such as the Annual Telecommunications Policy Conference, a three-day affair that brings together corporate, government, academic, and foundation leaders in the communications field.[28]

The place of Richard Mellon Scaife in the communications power structure has risen with the growth of New Right media organizations. According to the *Columbia Journalism Review*, foundations created by this great-grandson of Andrew Mellon have contributed millions to a score of organizations closely identified with Reagan administration policies to promote militarism and redistribute income to the rich (Table 2–6). Accuracy in Media and the Alternative Educational Foundation (*The American Spectator* magazine) promote conservative causes primarily through their respective publications. The Media Institute promotes the interests and image of business in the media. The $500,000 Scaife gave to public television station WQLN helped to fund production of Milton Friedman's series on conservative economics *Free to Choose*.

TABLE 2–6. Scaife foundation contributions

Where the money goes
Some of the larger or better-known conservative and New Right groups to which Richard Scaife has given substantial funding since 1973 are listed below. Amounts, which include grants from the Carthage and Sarah Scaife Foundations and the Trust for the Grandchildren of Sarah Mellon Scaife, are approximate.

Defense	
The Center for Strategic and International Studies, Georgetown University (Washington, D.C.)	$5.3 million
The Committee for a Free World (New York)*†	$50,000
Committee on the Present Danger (Washington, D.C.)†	$360,000
Hoover Institution on War, Revolution and Peace, Stanford University (Stanford, Calif.)	$3.5 million
Institute for Foreign Policy Analysis (Cambridge)*†	$1.9 million
National Security Program, New York University†; and National Strategy Information Center (New York)†	$6 million
Economics	
Foundation for Research in Economics and Education (Westwood, Calif.)	$1.4 million

International Center for Economic Policy Studies (New York)†	$150,000
International Institute for Economic Research (Westwood, Calif.)*†	$300,000
Law and Economics Center, originally at Miami University, now at Emory University (Atlanta)*†	$3 million
World Research, Inc. (San Diego)	$1 million
Media	
Accuracy in Media (Washington, D.C.)	$150,000
Alternative Educational Foundation (*The American Spectator* magazine, Bloomington, Ind.)	$900,000
The Media Institute (Washington, D.C.)*†	$475,000
WQLN-TV (Erie, Pa.)	$500,000
Think-tanks	
The Heritage Foundation (Washington, D.C.)*†	$3.8 million
The Institute for Contemporary Studies (San Francisco)*†	$1.7 million
Political Research/Education Groups	
American Legislative Exchange Council (Washington, D.C.)†	$560,000
The Free Congress Research and Education Foundation, Inc. (Washington, D.C.)†	$700,000
Legal Groups	
Americans for Effective Law Enforcement (Evanston)	$1 million
National Legal Center for the Public Interest, plus six affiliates (Capital Legal Foundation, Washington, D.C.; Mountain Sales Legal Foundation, Denver; Mid-Atlantic Legal Foundation, Philadelphia; Great Plains Legal Foundation, Kansas City, Mo; Mid-America Legal Foundation, Chicago; Southeastern Legal Foundation, Atlanta)*†	$1.8 million
Pacific Legal Foundation (Sacramento)†	$1.9 million

†denotes that the group recently received a contribution equal to 10 percent or more of the current or most recent available budget, as based on public or private records and/or confirmation by organization

*denotes that the group is known to have received seed money from Scaife

Source: Karen Rothmyer, "Citizen Scaife," *Columbia Journalism Review* (July/August, 1981), 41–50.

Research foundations, such as Rand, Aspen, and Ford, and university research programs, particularly those at the Annenberg schools, Harvard, and MIT, have taken an especially active role in shaping the communications deregulation policy that gathered momentum in the Carter administration and its implementation in the Reagan White House. Deregulation

would diminish the powers of the Federal Communications Commission to regulate the services and rates charged by communications carriers such as AT&T. Moreover, it would remove FCC powers to license broadcasters, and assure fairness in program content, equal time for political candidates, ascertainment of community needs, and equal employment opportunity. Deregulation replaces the public interest standard that has guided government oversight of electronic media for over 50 years with a reliance on "market forces" or industry competition to guarantee the best possible service. The marketplace, proponents contend, can better realize the development of new communications services such as videotex than can a government agency with a general public interest mandate. It is little surprise that this policy has met with the general support of the communications industry and the opposition of public interest and consumer groups.[29]

Leading research and policy organizations have promoted the general thrust to deregulation. Their influence on policy formation has helped make deregulation the chief agenda concern of legislators, rather than alternatives such as strengthening public access to and control over information resources.[30] As Timothy Haight concludes in his analysis of the pervasive influence that these organizations exert over telecommunications policy formation:

> . . . the network of experts, consultants, corporation executives, telecommunications industry representatives, and government officials have been talking to each other, and the staff members have been exchanging jobs for some time. Any new entrant into the telecommunications policymaking arena should be aware that all this discussion has gone on and that as a result certain ideas that have achieved relative consensus in this network are going to be very hard to oppose.[31]

At the center of this network are policy planning groups, private associations of corporate and government officials, who take the research findings of foundations and universities and shape these findings into specific proposals for action. Two of these bodies—the Committee on Economic Development and the Conference Board—have been active in the communications area. The latter is among the first elite organizations to have recognized the significance of telecommunications for the advance of U.S. multinational corporations. Its 1972 reports emphasize the need for U.S. business and government officials to identify the economic significance of "the information product" and, more importantly, to join together in a national effort to use communications technology to advance U.S. business interests globally.[32] The Committee for Economic Development, as Domhoff describes, has strongly influenced domestic policy making in the

U.S.[33] Its Board of Trustees is a Who's Who of corporate America. In 1975 the CED issued a report, *Broadcasting and Cable Television—Policies for Diversity and Change*, which presents deregulation as the first of its "five imperatives" for public policy:

> In the transition from scarcity to greater abundance and diversity, broadcast policy should rely more on competitive market forces and less on government regulation. Fair competition among the technologies should be encouraged. The development of new communications media should be fostered by freer access to the marketplace.[34]

Opinion-making bodies include government commissions and the national news media. These organizations report on proposals to realize general policy objectives. They thereby contribute to a general sense among a wide audience that policy directions, such as deregulation, are the logical response to problems. They contribute to the view that public debate should center on how best to deregulate communications, rather than on whether this is the right direction to follow at all. In the communications sphere, the Sloan and Carnegie Commissions have lived up to their respective namesakes by advancing the commercialization of cable and public television respectively.[35] The national news media have advanced deregulation by their representation on bodies that have promoted this policy, by their general identification of deregulation with overcoming the wrath of bureaucracy, and, perhaps most importantly, by their failure to provide space or give air time to specific proposals to deregulate communications and to alternatives based on greater public access and control.[36]

The Reagan administration showed its respect for the power of electronic media by sweetening its controversial 1982 budget package with a couple of gifts for the media. These would extend the license terms of radio stations from three to *seven* years and for television stations from three to *five*. According to broadcast critic Les Brown:

> For the station owner it was the fulfillment of his fondest wish from government, short of a license in perpetuity. The longer term gives him greater business security and a certain immunity from the public he is licensed to serve. More important, perhaps, is that it immediately increases the market value of the stations, in the same way that changes in zoning laws can increase the value of real estate. Reagan's gift was worth many millions of dollars to the industry.[37]

As a result, the White House won substantial support for his budget proposals from very powerful forces, the owners and managers of some 9,000 radio

and television stations. According to Brown, members of Congress who might otherwise oppose the Reagan budget, backed down when faced with the pressure of those who present the image of politicians over radio and television to the general public.

According to Domhoff, the opinion-making process makes the *legislative* outcome appear somewhat natural and inevitable as each step in the process eliminates options that might damage some elite faction or the general ruling class interest. The law-making stage is therefore not the central focus of policy making as pluralists have traditionally contended. It is the end result of a process that began several years and elite organizations earlier. That process makes natural or seemingly inevitable Congressional hearings on the need to deregulate communications and legislative proposals to meet that end.[38] It makes matter-of-fact proposals offered by the Department of Commerce National Telecommunications and Information Administration which suggest the need to eliminate the government role in communications, particularly new information technologies. NTIA's own Director of Videotex Services has given explicit evidence of this view in describing the work of the government's major videotex agency:

> Not surprisingly, one significant actor in this new field called videotex is the federal government. In the current climate of deregulation—where less government is better—I will only cautiously discuss a federal role in the videotex area. . . . What's left once you set aside the federal role of referee is the not so exciting role as actual participant in the application of videotex technologies.[39]

The head of NTIA's international division put it more succinctly in the title of a recent article: "How I became a true believer in the marketplace."[40] Finally, it appears natural, though perhaps a bit awkward, for FCC members to try to anticipate the Congressional steamroller, and thereby save a few responsibilities and jobs, by proposing to deregulate itself out of its station licensing and oversight responsibilities.[41]

In sum, it is no longer a question of *what* policy, that was answered several years ago. It is now a question of *how* best to allow AT&T to set its own rates, *how* best to award radio and television stations perpetual licenses; in a nutshell, *how* best to make corporations, and corporations alone, arbiters of the information marketplace.

The policy process model helps to explain how a particular goal such as deregulating media becomes a major agenda item. What is even more important, it suggests how successive institutional filters prevent alternatives to a corporate-controlled media system from reaching the decision-making process at a point where the general public can have some impact. Consequently, in a period when Congress considers revamping communications statutes enacted nearly five decades ago, there has been no policy debate

about the variety of options for public control over mass media in the United States, the least advanced of industrial societies in public telecommunications development.

The instrumental analysis of state-media relations therefore differs in two fundamental ways from pluralist research. Pluralism views participants in the process as relative equals, with no single interest in the position to dominate. The power structure model starts from the dominance of a specific class and examines institutional mechanisms by which challenges to class rule are eliminated. Thus, the power structure approach suggests we examine television networks and the Bell System, not as one among several participants (the "regulated industry" on relatively equal footing with "citizens groups"), but as central *directors* who shape the policy process so that it operates in their interest. Second, the power structure model offers a more expanded view of the decision-making process. Pluralists focus on how differing interests impinge on the government agency with formal authority, in electronic media, the FCC. According to the instrumentalists, the latter is merely one relatively minor step in a process that begins several years and more powerful organizations sooner. Thus, while pluralists might focus on how the FCC "decided" to deregulate radio, a power structure model suggests that we examine how corporations, foundations, policy-planning groups, and the news media over a period of years took positions that made this FCC action the inevitable formalizing of dominant class interests.

The instrumental model also contains important implications for media reformers. It suggests that filing petitions for reserved channels and challenging license renewals before the FCC may do little more than legitimize a mythical pluralism and mask the actual power structure, thereby maintaining the fantasy of Figure 2–1 when the reality supports Figure 2–2. Furthermore, it suggests that for media reformers to suceed they need to carry the struggle throughout the various steps in the policy-making process. Since the battle is typically lost by the time an issue arrives at the FCC, the public interest media movement must make corporations, research foundations, universities, policy-planning groups and the news media the sites of struggles over access to and control over the production and distribution of information technologies such as videotex. While the private nature of these institutions makes it difficult for the public to acquire legitimate standing to dispute, at the very least, such struggles can remove the ideological gloss from the power structure and contribute to its delegitimation.

From Instrument of Class Rule to Capitalist State

The *instrumental* approach is useful in that it explains how we get our system of corporate-controlled media and telecommunications. Furthermore, it suggests why alternatives to this system are rarely raised to the level of

serious discussion among those with the power to act on these alternatives. This section suggests how the instrumental approach can be deepened and enriched by a *structuralist* perspective on state-media relations. This perspective contains important implications for both scholarly analysis and political action with respect to the varied consequences of new information technologies.

Like the instrumental view, structuralism starts from the idea that the state serves capital. But a structuralist perspective on capitalist society focuses less on the process of class rule, on *how* the state works with a dominant class to advance its interests. Rather it emphasizes the *why* of class rule. Structuralism considers the vital functions that the capitalist state must satisfy in order to maintain the system on which the state depends for its survival. These include the need to advance capital *accumulation*. Without accumulation, the state would not have the material resources to survive. Cognate to this is the need for *legitimation*, or the maintenance of some degree of general popular belief in the system. Without legitimation, the state would lack the emotional resources to survive. Finally, there is the need to *repress* opposition from those who are believed to threaten the survival and growth of the system. The connection of state activities with systemic functions leads the structuralist to identify contradictions within a dominant power bloc of capitalist interests, the pressures of groups that at least implicitly oppose the capitalist state, and the state's response to these contradictions and conflicts. This response is reflected in some measure of relative state autonomy, itself ridden with contradictions. Such autonomy, despite the contradictions, better enables the state to avoid overidentification with the short-run interests of one particular sector of the dominant power bloc so that it can undermine opposition and advance the long-run interests of the capitalist system.

There has been extensive debate among critical theorists on the relative merits of the instrumental and structural perspectives. It is not important to enter the fray here. But it is vital to determine what elements in a structuralist perspective help us to understand the place of information technologies such as videotex in American society. To answer this question of course requires comparison with the instrumental view. But such comparison is meant not to determine which is the *right* view in an abstract theoretical sense, but to bring to bear what analytical resources are available to the concrete task at hand.[42]

Figure 2–7 presents a structural model of state-media relations. It is a conceptual map of the information arena. The following considers the dimensions of this map to help us understand these relations and strategies for those interested in changing them.

FIGURE 2–7. A structural model of state-media relations

Structure

Capitalist State		*Dominant Power Bloc*
Functions:	Agents:	Established Dominant Powers:
Accumulation	NTIA, FCC, State Dep't	AT&T, TV Nets
Legitimation	Justice, HHS, FTC, ICA, CPB	Domestic Challengers: Conglomerate Media—IBM, CATV MSOs, COMSAT
Repression	DOD, NSA, CIA, FBI, IRAC	Conglomerate Non-Media—Getty, Exxon, Mobil
General Supervision.....	Cong. Communications Subcommittees, Courts	Small Producers—MCI
		Conglomerate Users—SWIFT, AIRINC
		Global Challengers: European and Japanese State-Media Complexes, Semi-Peripheral and Peripheral Society Compradores

Dominated Classes and Strata
Independent Producers: AIVFM
Policy Activists: NCCB, CCC, ACT
General Policy Activists: IAM, AFT, NOW
Individual Consumers
Media Workers

Process

Anti-democratic intervention by the corporate state to manage conflicting demands of the dominant power bloc and deflate the demands of dominated classes and strata.

General Result: "Governability Crisis"—Heightened Pressure for New Forms of Legitimation and Repression

THE DOMINANT POWER BLOC

We begin with the dominant power bloc because the interests of these organizations, in common and in conflict, set the pattern for other forces in the system. The chart provides major examples of participants in the dominant power bloc organized according to structural position within the system.

ESTABLISHED DOMINANT POWERS

AT&T and the broadcasting networks (ABC, CBS, NBC) are the major powers of long standing in the telecommunications and electronic media areas. Until recently, their power in these areas met with only minor challenges from the corporate and governmental worlds. AT&T had a virtual monopoly over local and long distance residential and business phone communications.

ABC, CBS, and NBC controlled the production and distribution of broadcast programming through station affiliation agreements and outright ownership of broadcast outlets in major markets.

DOMESTIC CHALLENGERS

New developments in communications, such as videotex, have opened up new opportunities for profitable services. A number of interests are trying to take advantage of these opportunities and thereby challenge the hegemony of the established powers. One such group of *conglomerate media* organizations includes IBM, cable-television multiple system organizations, and Comsat—the Communications Satellite Corporation. These large multidivisional corporations that have traditionally made telecommunications and mass media their major business activities are beginning to challenge the dominant powers on a number of fronts.

IBM is using its computer industry base to move into the increasingly lucrative markets created by the marriage of computers and communications technologies. The company has joined up with Comsat (for satellite technology) and Aetna Insurance (for capital) to form Satellite Business Systems. SBS is a business data and voice communication system that links offices with computer-communications systems directly by satellite and an on-premise satellite earth station. The system thereby bypasses most of the AT&T terrestrial network and promises to cut heavily into Bell revenues in business data communication, the fastest growing of the information sector markets.[43]

Comsat is central to our understanding of challenges from U.S. media conglomerates because its proposed growth areas span telecommunications and mass media. Comsat's activities in the former include, but are not limited to, its recent venture into SBS. The company also has important technical, economic, and political responsibilities as the major owner and manager of the more than 100-nation INTELSAT communications satellite network. Comsat has also begun to venture into mass media. The FCC has given the company approval to develop a pay television service. Such a service would deliver several channels of entertainment programming by satellite directly to a roof- or set-top receiving "dish"—a miniature earth station. This Direct Broadcast Satellite service would bypass both AT&T and broadcast distribution networks and thereby challenge the oligopoly dominance over programming that the television networks have heretofore enjoyed.[44]

Conglomerate cable television companies offer an additional challenge. These companies are cutting into network dominance by taking advantage of the growth in satellite and coaxial cable distribution systems. For example, Turner Broadcasting has made a once lowly Atlanta, Georgia UHF television channel into a satellite linked "Superstation" that brings sports, old movies, news, and advertising to cable subscribers nationwide. WTBS has matched

its superstation status with growing profits, because without spending much on programming, the station can take in ad revenues based on *national* rather than local rates. Turner is only one of several CATV conglomerates, Warner-Amex and Westinghouse-Teleprompter are industry leaders, to challenge network control over electronic home entertainment and, most importantly, network control over the delivery of large audiences to advertisers.

Another of these cable alternatives is the Entertainment and Sports Programming Network. ESPN is a 24-hour sports station that provides cable viewers with every sport, quasi-sport, and pseudo-sport imaginable. But what is particularly significant about ESPN has nothing whatsoever to do with athletics. In 1979 Getty Oil used some of the money it is supposed to be investing in energy exploration to acqurie 85% of ESPN. The company is more than a profitable investment. Regular commercials on ESPN warn of the dangers of government regulation and praise the spirit of free enterprise that makes America, and its oil companies, so great. In April 1980 Getty stepped up its cable TV involvement by joining with four major motion picture firms (Columbia, Twentieth Century-Fox, MCA, and Paramount) to form the Premiere pay-cable service. Getty planned to invest $30 million in this venture to produce and distribute by satellite first-run feature films, before the obvious antitrust implications of this massive concentration of power led the oil giant to drop the project for now. In October 1981 Getty announced plans to pursue a joint venture with ABC to create an all-sports pay channel that would take advantage of that networks' rights to such lucrative events as the 1984 Summer Olympics in Los Angeles.

Prior to recent years, companies such as Getty—conglomerates whose primary source of profit lay outside the media sphere—influenced the production of ideas primarily through their advertising. Today such businesses are more active than ever in presenting explicit ideological messages on electronic media.[45] But added to this purchase of time is the outright purchase of media companies. As a result, television is now more than watching a network situation comedy sponsored by 3M or a public television special brought to us by a grant from Exxon. It is a radio station owned by Charter Oil, a cable sports or movie channel owned by Getty, and a syndicated 30-minute nightly national news program, ironically called the Independent Network News, produced and distributed by the Mobil Oil Corporation. Moreover, as Chapter Five describes in some detail, non-media conglomerates are now investing heavily in the telecommunications infrastructure that promises to automate the office and thereby boost white-collar productivity. Exxon is a major participant in this side of the information business. The company produces word processors, copiers, and other office information systems that, while a minor component of the company's overall operations, make the future prospects of oil-company dominance in this growing field far

from a remote possibility. Table 2–8, which cites *Broadcasting* magazine's information on the largest companies in the electronic media business, testifies to the growing strength of non-media conglomerates.

TABLE 2–8. Top 20 companies in electronic media by total revenues from all businesses, 1980*

1.	General Electric Company
2.	Eastman Kodak Co.
3.	Getty Oil
4.	Westinghouse Electric Corp.
5.	RCA Corp.
6.	Rockwell International
7.	3M Co.
8.	Gulf+Western Industries
9.	American Express
10.	Charter Oil
11.	Transamerica Corp.
12.	Nippon Electric Ltd.
13.	CBS Inc.
14.	Sony Corp.
15.	Motorola Inc.
16.	Time Inc.
17.	North American Philips Co.
18.	American Broadcasting Companies Inc.
19.	General Tire and Rubber Co.
20.	Warner Communications

Source: Broadcasting, January 5, 1981, pp. 40–71.

*Mobil did not begin its news service until 1981. Exxon does not have mass media companies.

Small producers of telecommunications such as Microwave Communications, Inc. (MCI) are forces of diminishing significance among domestic challengers. MCI is important because its early challenges to the Bell System in the marketplace, the courts, before Congress, and the FCC, opened the way for conglomerates such as IBM to move with security into a field that Bell had for so long dominated. MCI continues to challenge, but like its pioneering predecessors, the company will at best find a comfortable niche in a system that giants are now carving up.

Up to this point, we have concentrated on the producers of communications services. As the communications arena grows in economic significance, large *users* of information act to take greater control over the arena. Formerly at the mercy of rate and service decisions dictated by AT&T, large banks, insurance companies, the airlines, and other large users are setting up their own networks and using their substantial communications buying power to pressure the major carriers for favorable rate treatment. SWIFT (the Society for Worldwide Interbank Financial Telecommunications) is a

network of 770 banks from 27 countries in Europe, the Americas, and the Far East. The profits of these banks depend on rapid, efficient, low-cost, and private information distribution between headquarters and branches, among one another within the U.S. and throughout the world. Private financial networks like SWIFT allow bankers to take confidential advantage of money market fluctuations, interest rate changes, and other financial actions to which a rapid response means profit. On the electronic mass media front, the U.S. Chamber of Commerce has established BIZNET, a national satellite telecommunications network. For an initial fee of from $12,000 to $20,000 and an annual subscription charge of $5,000, subscribers will receive instant reports on business and related political, legislative, and regulatory developments. Moreover, after regular programming hours, the Chamber's studios will be used for "tele-lobbying," i.e., businessmen around the country will be able to confer with political officials and one another through the network. This is how Daryl D. Griffin, senior producer and manager of television operations for the Chamber of Commerce describes the project:

> Biznet programs would include "Meet Your Candidate," an extemporaneous forum for Congressional aspirants, with viewers phoning in questions; "Today in Congress," a Monday-through-Friday presentation of current events on Capitol Hill, and "Ask Washington," a call-in program allowing viewers to talk with Washington political leaders about issues of the day.[46]

The growing significance of multinational corporate users of communications is exemplified by the influence that user organizations have exerted on the U.S. government's deregulation proceedings. Organizations such as the International Communications Association, a body whose membership is based on use of $1 million or more of communications annually, have achieved substantial success in opening up the telecommunications industry to a point where it is more clearly than ever responsive to the price and service needs of multinational corporations.[47]

GLOBAL CHALLENGERS

User networks challenge not only the dominant domestic network. They also compete with international telecommunications carriers, led by the government controlled Post Telephone and Telecommunications (PTT) operations in Western Europe and Japan. These national companies respond by participating in the development of new services to resist encroachment by private networks and, more importantly, to build national computer-telecommunications systems to resist the advance of U.S. conglomerate media companies such as AT&T and IBM. These new services include teletext and videotex. Subsequent chapters take up the role of national systems,

particularly those in Britain, France, and Canada where videotex has made most progress. We also consider the role of compradores in semi-peripheral and peripheral societies. These local elites are central to carrying out core-capitalist penetration into the Third World.

RESPONSE FROM THE ESTABLISHMENT

AT&T and the broadcasting networks are certainly faced with challenges to their traditional supremacy on a number of fronts. But it is just as certain, in fact, about as certain that you have heard the words "Reach Out and Touch Someone," that these established powers are not about to sit back and allow their supremacy to be seriously eroded. AT&T has actively pursued the computer-telecommunications connection with its own national and international business data networks. As Chapter Three details, AT&T has entered the videotex market with proposals for an electronic yellow pages and a general home information delivery system. The company's proposals for videotex coding standards presented at the Videotex '81 Conference in Toronto made headline stories in the daily and trade press.[48] AT&T does not appear to be prepared to yield or, as one of its executives said with characteristic understatement, "We don't want to be frozen in the print area."[49] The 1982 consent agreement between AT&T and the Justice Department gives AT&T a free hand to enter this area with its research (Bell Labs) and manufacturing (Western Electric) divisions fully intact. Similarly the major broadcasting networks are responding to these challenges by expanding beyond traditional video into cable, videodisc, and videotex production. Referring to CBS Los Angeles teletext field trials, that network's Broadcast Group President Gene Jankowski said, "We think we can open up a whole new opportunity for advertising revenues."[50] Such an opportunity is supported by the joint agreement between AT&T and CBS to establish a common videotex service.[51]

CHALLENGE TO THE ESTABLISHMENT . . . BUT NOT TO THE SYSTEM

The foregoing suggests that the communications industry is not a monolithic force. There are several types of participants with different short-run interests. Consequently, there are conflicts and contradictions, as well as cooperation and coordination. Nevertheless, these conflicts take place within the context of fundamental agreement that the system, which makes information private property to be bought and sold for profit, is the best, indeed the only realistic framework within which to operate. There is no disagreement between AT&T and IBM that they are out to get the information commodity to

maximize profit. Consequently, by recognizing the reality of conflict within the system, we are not revisiting the pluralist fantasy. Rather, within the agreed-upon rules of capitalism, differences exist among competing capitalists which make it especially important for the state to coordinate actively relationships among dominant power bloc members. The *instrumental* view suggests how this coordination takes place. The structuralist suggests that the task is all the more pressing because the information sector is increasingly vital to the operation of domestic and multinational corporations. The sector is not only the source of profit in its own right. As the presence of SWIFT and other private multinational networks suggests, the information area is a vital force in the coordination of such enterprises both within and among offices.

FUNCTIONS OF THE STATE: DEREGULATION IS LIKE A PROTECTIVE REACTION

The Indochina War taught a generation of Americans the meaning of a euphemism. The Pentagon would refer to the U.S. saturation bombing of military bases, villages, and hospitals—bombing that turned the Indochinese countryside into a lunar landscape—as a "Protective Reaction." This is a euphemism. Deregulation is similarly a euphemism.

The word deregulation conjures up the idea of less government involvement in private business. More graphically, it suggests a huge bloated bureaucracy easing off the backs of poor, helpless, free-enterprising young business people eager to boost productivity, create jobs, and otherwise advance The American Way. Though a policy direction of recent administrations, the Reagan administration gave deregulation its strongest support in a number of industries, including communications.

What makes deregulation a euphemism? The structure of state agencies with an important role in the information industry and proposals to change that state structure suggest not deregulation but *redistribution* and *recapitalization*. We find a redistribution of power *away* from federal communications agencies, with substantial individual consumer and general public interest responsibilities, over to agencies that promote the expansion of multinational corporations and militarism. In other words, what some call deregulation is actually the reshaping of the state to recapitalize U.S. industry generally and its military-information complex in particular. This is an important theme to bear in mind as we consider the second component of this structural model—the capitalist state.

Figure 2–7 indicates state functions divided into three specific and one general area. While overlaps in function and territory do exist, this method of division provides a useful map to assess the state's communications structure and changes that are redistributing power within that structure.

ACCUMULATION

As is clear to anyone who does little more than glance at the business pages of daily newspapers, the information sector is replacing manufacturing and agriculture as the major force in the U.S. economy.[52] Specific amounts aside, information is vital to corporate capital accumulation. Three agencies—the National Telecommunications and Information Administration, the Federal Communications Commission, and the State Department—are principally responsible for organizing corporate interests to mesh short-term differences with long-term agreements that advance U.S. capitalism.

The National Telecommunications and Information Administration is an agency of the U.S. Commerce Department. As such, it seeks to promote the commercial interests of U.S. information producers and the information component of other industries. An NTIA-produced statement on *The Foundations of United States Information Policy* reveals the clear recognition that information is principally an economic force:

> The development of both domestic and international information policies, although possibly a very elusive goal, is an important governmental endeavor because information has properties which underlie the effective function of modern society. Some of these properties are:
>
> —*Information is a resource*. Like energy, capital, or labor, information is a resource that can be applied to achieve economic, social, or political goals.
>
> —*Information is a commodity*. Information is sold, traded, or otherwise exchanged, frequently for financial or other reward to the person or organization sharing or giving up the information.
>
> —*Information can conserve resources and enhance productivity*. The effective acquisition and use of information can save other resources or turn them to more productive uses.[53]

NTIA succeeded the short-lived (1969–1978) White House Office of Telecommunications Policy. The latter lost sight of this broad economic mission to advance long-run corporate-communications interests and became politically expendable when it challenged the ideological tone (overly liberal) of commercial and public television stations.[54]

The FCC has not fared particularly well under deregulation. This is principally because the FCC is charged with regulating electronic communications "in the public interest," a major target of this policy. Earlier discussions of rewriting the 1934 Communications Act proposed substantial cutbacks, as much as 25%, in FCC budget and personnel.[55] More recent pro-

posals have treated the Commission less harshly. They suggest a connection between a softer legislative approach to the Commission and the FCC's recent action to deregulate itself. The latter is evident in Commission action to eliminate all public interest regulation, including license renewals, community needs surveys, equal time provisions, and the fairness rules in radio broadcasting. The Commission has taken or proposed similar actions in broadcast television, CATV, and telecommunications.[56] Thus, while deregulation means the shift of some power from the Commission to agencies with a more explicit industry orientation, the FCC has survived by restructuring its own agenda.

The FCC's own radio deregulation policy took effect early in 1981. By the middle of that year, the impact began to be felt. WRVR-FM in New York dropped a weekly public affairs program that *The Nation* magazine has produced for several years. Station managers informed the program producers that their program was canceled because the FCC no longer "required" public affairs shows on radio. Also in New York, WABC-AM has dropped all late-night local newscasts in favor of the national network feed. As *Access* magazine comments: "So much for localism." KMEL in Los Angeles has dropped the public affairs programs *59 Minutes* and *Your Opinion*. KKJY-FM in Albuquerque cut its five hours of Sunday morning public affairs and religious programming by 90% to a half hour. Unsolicited public affairs tapes are returned to senders. A public affairs syndicator reports that sales are sagging as stations free up air time for commercials.[57]

The State Department has, of course, principal responsibility to advance U.S. international communications interests. In this regard, the Department has headed up an Interagency Task Force to coordinate the efforts of U.S. businesses and government agencies with a stake in the international communications power structure. This marks some progress for State which has been criticized for inadequate attention to the increasingly significant role that communications plays in international affairs, particularly business affairs.[58]

LEGITIMATION

Another element of the redistribution of power that is taking place under the guise of deregulation is the shift in emphasis among state functions. The state function to advance capital *accumulation* has grown at the expense of *legitimation*. Legitimation is the ability of the state to attract popular belief and acceptance of the system. As Alan Wolfe has convincingly argued, legitimation is a function wracked by contradictions throughout American history.[59] The primary contradiction is between a belief in unlimited freedom for private acquisition and democracy, a commitment to equality and the fullest possible public participation in decision making. For Wolfe and others, this

contradiction between support for unlimited accumulation and widespread democracy amounts to a "crisis in legitimacy." Others suggest that the state's response to this crisis is the elimination of its commitment to democracy, aside from a few rituals, in favor of "friendly fascism."[60] Economic necessity, "reindustrialization," and the "governability crisis" make it necessary to restrict public participation. It remains to be seen just how far this image of friendly fascism is to be realized. What we can say is that in the communications sphere, there is ample evidence to suggest a shift from democratic legitimation to capital accumulation.

We have seen how proposed Communications Act changes and the FCC's own regulatory revisions mark a shift in favor of accumulation. Changes affecting U.S. government agencies with a major role in legitimation suggest that this shift is at the expense of the need to realize democratic legitimation. These changes include substantial budget cutbacks in general and in the communications activities of such agencies as Health and Human Services, the Federal Trade Commission, and the Corporation for Public Broadcasting. Reagan administration cutbacks have meant curtailment and elimination of HHS public service communications projects in health and education, the severe restriction of FTC actions against the abuses of electronic advertising, particularly that aimed at children, and the well-publicized cutbacks in the already impoverished public broadcasting budget. As a result of cuts in public broadcasting funds, CPB officials are making public radio and television more dependent on private commercial grants. Moreover, CPB is shifting its emphasis to pay-cable services to generate revenues from people with the money to pay for the cultural programming that has heretofore been freely available to anyone.[61] Furthermore, budget cuts and other White House pressures have stymied or ended Justice Department Antitrust Division cases against major communications companies, particularly AT&T, IBM, and CBS.

The International Communication Agency is one legitimation agency whose budget and mandate have grown in this time of austerity and deregulation. ICA is responsible for managing U.S. government mass media and cultural exchange programs. Under its aegis are the Voice of America, the official U.S. international radio organ, and what used to be the U.S. Information Agency, the non-broadcast media organization. The ICA is therefore responsible for U.S. international propaganda. One manifestation of this growth in U.S. radio propaganda is the establishment of Radio Broadcasting to Cuba, in Spanish, Radio Marti, named after the Cuban resistance leader of the early twentieth century. According to Richard Allen, former national security adviser to President Reagan:

> This radio service will tell the truth to the Cuban people about their government's domestic mismanagement and its promotion of subver-

> sion and international terrorism in this Hemisphere and elsewhere. It will tell the Cuban people what these activities cost in terms of living standards for them and their children and will correct the false image they have been given of Cuba's international reputation.[62]

The decline of public broadcasting, the end of the FTC program to combat the abuses of children's advertising, the end of antitrust actions against media giants, and the rise of Radio Marti suggest the decline of concern for democratic legitimation and the growing concern for capital accumulation. This latter function is closely linked to the growth of militarism.

REPRESSION: MILITARY AND INTELLIGENCE AGENCIES

The U.S. Department of Defense is the single largest user of telecommunications. Its 1982 budget for communication and intelligence was $14.5 billion. To better appreciate the scale of this spending, the Pentagon budget for telecommunications is about as large as the *revenues* taken in by all the radio and television stations in the United States.[63] These include over 8,000 radio and 1,000 television stations. Furthermore, the Pentagon and intelligence agencies use 50% of all the radio frequencies assigned to the U.S. government, or about 25% of all the frequencies used in the United States. That is the rough equivalent of saying that one out of every four radio outlets in the United States is under the control of the U.S. military.

Though its primary function is military repression, the enormous communications network of computers, satellites, undersea cables, microwave towers, etc. under DOD control make the Pentagon a major force for capital accumulation. Table 2–9 reports on one aspect of this accumula-

TABLE 2–9. U.S. communications companies receiving defense contracts, 1980

Rank Among All Profit and Nonprofit Companies	*Name*	*Thousands $*
7	General Electric	312,629
14	IBM	158,104
18	RCA	121,556
20	GTE	111,596
22	Westinghouse	109,856
24	Motorola	88,769
25	AVCO	86,911
28	ITT	78,492
59	Magnavox	20,104
68	Western Electric (subsidiary of AT&T)	17,785

Source: U.S., Department of Defense, *500 Contractors Receiving Largest Dollar Volume of Prime Contract Awards, Fiscal 1980*, Washington, DC, 1981.

tion function—research and development contracts awarded by the Pentagon to U.S. communications companies in 1980. As the data indicate, General Electric was the leading company among communications firms and seventh overall. This adds a note of dark irony to the company's recent advertising slogan: "We Bring Good Things to Life."

The Pentagon exerts a substantial influence on the shape of the electronics industry. This is especially the case for the growing semiconductor or microchip industry. Market analyst Data Resources, Inc. places the Pentagon share of U.S. semiconductor production at about 18%. Moreover, as the Reagan budgets take hold and the Pentagon expands production, Data Resources projects the military share to rise to 23% by 1986.[64]

The Defense Communication Agency and the Defense Telecommunication and Command Control System are the Pentagon's arms responsible for the communications network. However, the Pentagon uses its own communications satellite network for only about one third of its communications needs. For the remaining two thirds, the Pentagon relies heavily on established carriers, particularly AT&T. This cozy relationship, cemented by about a billion dollars in annual business, is an important influence on the politics of telecommunications. Recent attempts to apply some measure of antitrust control over the Bell empire, at least to require it to set up separate subsidiaries in areas where the cross-subsidy potential is high, have been prevented by Pentagon intervention. DOD claims that to change AT&T would threaten national security.[65] Such claims are difficult for regulators and judges to ignore. A threat to national security makes worries over industry concentration and inflationary phone rates pale in comparison. Consequently, the Pentagon has proven to be AT&T's ace in the hole when confronted by corporate and governmental challenges. Recently, however, the ace has turned on the dealer. In an effort to protect its communications interests and expand its powers, the Pentagon has taken an aggressive step in the deregulation debate. The Pentagon succeeded in adding a clause to the Senate-passed version of the Communications Act rewrite, S.898. This permits the President, on a Defense Department recommendation, to make any communications company offer any services, equipment, and facilities "to promote the national defense and security or the emergency preparedness of the nation."[66] These are powers that have heretofore been reserved for wartime; there would no longer be the need to declare a state of emergency to put this power into effect.

The Pentagon's significant corporate connection underscores the substantial military danger that the rapid growth in Defense Department appropriations, including spending for military communications, represents. The U.S. economic infrastructure, of which communications is a vital component, is becoming all the more dependent on a military establishment whose logical extension is what the British historian E.P. Thompson refers to as the inevitability of exterminism—nuclear holocaust.[67] Take for example the space shuttle, heralded and headlined as a symbol of renewed Aerican

spirit and economic vitality. Of 75 flights planned for 1986, 21 are dedicated to military space missions. These are the types of activities that the Pentagon's Space Division has planned for the shuttle:

*Orbital spy machines built for intelligence agencies;

*Secure military communications satellites;

*Navigational devices for plotting locations to within 50 feet;

*Specialized weather observers.[68]

It is true, as we are often reminded, that military satellites are essential for monitoring strategic arms limitation agreements. However, satellites are also now used to track enemy submarines and communicate instantaneously information on their locations. This ability to pinpoint submarine targets is the final piece of a puzzle that satellites earlier helped to solve with their ability to track troop movements and land-based missiles. As a result, Pentagon officials now talk openly about winning a nuclear war, provided that the U.S. strikes first. But this does not complete the circle. Satellite tracking systems give birth to A-Sats or anti-satellite weapons systems, thereby bringing video game fantasies of Star War confrontations ever closer to an adult reality (Figure 2–10).[69]

FIGURE 2–10. The military space budget

Program	*Fiscal Year, $ in millions* 1979	1980	1981
Navigation Satellites: Global Positioning System	$ 117.1	$ 217.1	$ 190.7
Communications Satellites	458.6	587.2	817.5
Early Warning Satellites (Detect missile launches)	214.3	212.2	273.6
Earth Measurement (Geodesy)	8.5	9.5	9.9
Weather Satellites	61.2	61.0	90.3
Development of Space Shuttle and other new spacecraft	509.6	642.7	726.1
Ground Stations (For detecting, tracking, controlling spacecraft)	210.9	246.9	286.2
Additional Research and Development for Space Programs	434.0	459.5	564.0
General Support (Administrative and operating costs of space programs in general)	1196.5	1567.3	1952.4
Spy Satellites, other secret programs (Estimate)	2100.0	2300.0	2500.0
Total Military Space Budget	$5.3 Billion	$6.3 Billion	$7.4 Billion

Source: Center for Defense Information, *The Defense Monitor*, 1980, *IX* (9), p. 1.

The Central Intelligence Agency and the FBI are rarely topics of study in basic courses on mass media and society, but their communications networks rival those of the news wire services and the broadcasting networks. While it is hard to measure this with precision, in part due to the secrecy of CIA budget items, it is quite possible that the largest international news-gathering agency in the U.S. is not the Associated Press, but the Foreign Broadcast Information Service—the CIA's overt information-gathering agency.

Recent actions with respect to these agencies underscore the view that deregulation actually means the redistribution of power from agencies protecting legitimacy to those supporting accumulation and repression. Deregulation means less power for the FCC, but for the CIA and the FBI it means more power and considerably less public access to information. The Reagan Administration is taking steps to broaden the power of these agencies to conduct covert intelligence operations on U.S. citizens within the United States. At the same time, it proposes to eliminate provisions of the Freedom of Information Act to make it considerably more difficult for people to obtain access to government public records.[70]

This blow to the free flow of information in the U.S. comes at a time when documents received under the Act reveal the extent of intelligence agency attacks on opposition movements. Particular emphasis was placed on the use of established media and attacks on the alternative press. These are excerpts from a 1968 memo that FBI Director Hoover sent to his field officers around the country in 1968:

> Bulet 5/10/68 requested suggestions for counterintelligence action against the New Left. The replies to the Bureau's request have been analyzed and it is felt that the following suggestions for counterintelligence action can be utilized by all offices:
>
> 1. Preparation of a leaflet designed to counteract the impression that Students for a Democratic Society (SDS) and other minority groups speak for the majority of students at universities. The leaflet should contain photographs of New Left leadership at the respective university. Naturally, the most obnoxious pictures should be used.
>
> 4. The use of articles from student newspapers and/or the "underground press" to show the depravity of New Left leaders and members. In this connection, articles showing advocation of the use of narcotics and free sex are ideal to send to university officials, wealthy donors, members of the legislature and parents of students who are active in New Left matters.
>
> 5. The drawing up of anonymous letters regarding individuals active

in the New Left. These letters should set out their activities and should be sent to their parents, neighbors and the parents' employers. This could have the effect of forcing the parents to take action.

8. Whenever New Left groups engage in disruptive activities on college campuses, cooperative press contacts should be encouraged to emphasize that the disruptive elements constitute a minority of the students and do not represent the conviction of the majority. The press should demand an immediate student referendum on the issue in question.

12. Be alert for opportunities to confuse and disrupt New Left activities by misinformation. For example, when events are planned, notification that the event has been cancelled or postponed could be sent to various individuals.[71]

Armed with directives such as this, the FBI intensified its COINTELPRO operation. This is how one analyst summarizes the FBI's work:

> . . . the FBI planted stories about "subversives" in the media, wrote scurrilous letters from fictional sources, opened mail, forged public documents, pressured universities and employers to dismiss targeted workers, encouraged "friendly" organizations and local police to harass dissidents, exploited IRS tax records, and infiltrated legal organizations.[72]

While most of us have some familiarity with the CIA and FBI, few are aware of the National Security Agency, the organization that *Science* magazine calls the "giant vacuum cleaner." This refers to the NSA's practice of using global computer/satellite networks to suck out of the air telex, telephone, radio, and other messages. NSA captures and stores messages based on a sophisticated word recognition system sensitized to such terms as "oil," "bomb," "assassination," etc. The NSA works closely with other intelligence agencies, as well as with the major international message carriers: AT&T, RCA, ITT, and Western Union International. According to 1975–76 House hearings, these companies delivered messages to the NSA over a period of years.[73] This led one former member of Congress to conclude that Operation Shamrock, the NSA's code name for an international intercept program with the private communications companies,

> represents a scale of interception vastly greater than any known FBI or CIA mail intercept program. The privacy of virtually every person who

> has sent or received a cable in the last twenty-eight years—tens of millions of Americans—has been invaded.[74]

NSA has the means to intercept domestic communications, though its involvement in domestic interception is largely determined by how much freedom the Attorney General gives it. For about $60,000, a special antenna can pick up telephone conversations transmitted by microwave. Since this is how 70% of all long distance calls are transmitted in the United States, NSA is in an ideal position to listen in on most domestic telecommunications.[75] In fact the NSA has at least 150 microwave listening posts in the United States.[76] A major one is located in a Suitland, Maryland complex, well within sight of a heavily-used AT&T microwave relay station.[77] From this facility, communication circuits can transmit to the NSA's Fort Meade headquarters domestic telephone traffic coming in or leaving the nation's capital. Moreover, while the NSA does not have policy responsibilities formal enough to appear on a pluralist chart of policy participants, the NSA is an important power in this area as well. NSA surfaces from time to time to intervene in policy and regulatory proceedings when it foresees national security relevance in proposed decisions. In one case, NSA is given substantial credit for reversing a long-standing FCC policy to rely on communications satellites rather than undersea cables for transatlantic communications. NSA supported building more cables, despite their expense and lack of versatility, because of the need for a secure backup communications system. This intervention was enough to convince the FCC which had up to that point fended off the intense pressure of the Defense Department, AT&T, ITT, RCA, major investors in undersea cable technology and services.[78]

An agency that rivals the NSA in secrecy and military significance is the Interdepartment Radio Advisory Committee. As Schiller points out in the only substantial analysis of this agency, the IRAC has been around since 1922, longer than the Federal Communications Commission.[79] Its formal responsibilities are similar to those of the Commission in the area of spectrum allocation. The IRAC is made up of government agencies who distribute to one another that portion of the electromagnetic spectrum—the essential resource for radio and other over-the-air communications—that is reserved for government use. This amounts to a substantial power because the government uses about half of the available spectrum. While formally housed in a division of NTIA, the IRAC is largely under military control. Agency participation is based on the extent of spectrum use. As Figure 2–11 indicates, the distribution of frequencies is heavily weighted in favor of the military. Unlike the FCC, IRAC deliberations are not open to the public. Consequently, decisions about the distribution of an increasingly vital resource result in secret support for the maintenance and growth of the military establishment.

FIGURE 2–11. IRAC spectrum assignments, January–June 1980

Department or Agency	*Number of Assignments*	*% of Government Master File*
Agriculture	8868	5.48
Air Force	22291	13.88
Architect of the Capitol	1	.0006
Army	18025	11.14
Commerce	4200	2.69
Commodity Futures Trading Commission	8	.0004
Coast Guard	8797	5.44
Central Intelligence Agency	140	.008
Consumer Products Safety Commission	1	.0006
Department of Energy	5100	3.15
Environmental Protection Agency	218	.13
Federal Aviation Administration	23698	14.27
Federal Communications Commission	825	.51
Federal Emergency Management Agency	67	.03
Federal Home Loan Bank Board	1	.0006
Federal Mediation Conciliation Service	8	.0004
Federal Reserve System	92	.05
Government Accounting Office	1	.0006
Government Printing Office	2	.0012
General Services Administration	578	.35
Health, Education, and Welfare	1275	.78
House of Representatives	5	.0030
Housing and Urban Development	8	.0004
Interior	10924	6.75
Intl Boundary & Water Commission	76	.04
Intl Communications Agency	881	.95
Interstate Commerce Commission	1	.0006
Justice (FBI)	12949	8.00
Labor	70	.043
Library of Congress	4	.0024
Navy	27726	17.145
NASA	1177	.72
Non-Government	4684	2.89
Nuclear Regulatory Commission	88	.054
National Security Agency	153	.094
National Science Foundation	178	.11
Nat'l Transportation Safety Board	0	
Office of ADM-EOP	1	.0006
U.S. Office Personnel Management	0	
Offc Technology & Assessment	1	.0006
State	133	.08
Supreme Court	2	.0012
U.S. Senate	2	.0012

FIGURE 2–11. (Continued)

Department or Agency	*Number of Assignments*	*% of Government Master File*
Smithsonian Institution	83	.051
Treasury	4610	2.85
Transportation	334	.20
Tennessee Valley Authority	1257	.777
U. S. Capitol Police	10	.006
U. S. Postal Service	885	.547
United States Tax Court	1	.0006
Veterans Administration	1270	.78

Source: National Telecommunication and Information Administration, *Crosstalk*, January 9, 1981, *III* (1), p. 3.

GENERAL SUPERVISION

In addition to carrying out the functions of accumulation, legitimation, and repression, the agencies described above are involved to differing degrees in providing general supervision for the smooth functioning of the entire system. However, overall responsibility for satisfying the need for supervisory rules and refereeing dispute settlement lies with the Congress and the courts. These bodies have become increasingly active in telecommunications deliberations as the information area has grown in economic significance, requiring a shift to accumulation, and as the multiplication of participants has increased the need for rational rules and new means to settle disputes. Consequently, the Commerce Committee Communications Subcommittees in the House and Senate have worked on new communications legislation since the mid-1970s. The complex task of dividing up the turf among dominant bloc members has made the work of putting together a comprehensive piece of legislation especially difficult. How much of a role should AT&T play in data processing? Should it be permitted to deliver text information into the home? Can cable television programmers continue to reprogram broadcast material to CATV subscribers? Answers to these questions will set the pattern for dominant bloc relationships in the coming years. But it is easy to focus on specific difficulties and lose sight of the fundamental agreement within which these difficulties take place. All legislative proposals that have received serious Congressional attention have emphasized "deregulation" or the redistribution of power and governmental attention away from public interest concerns, and toward greater corporate control. Consequently, as the instrumentalists would agree, the question is not more corporate control *or* public control, but how to accomplish the former in such a way that satisfies the basic interests of dominant bloc members.

DOMINATED CLASSES AND STRATA

We have considered two ends of the triangle that comprises the structure of state-media relations in the United States. Though by no means exhausting the list of participants, we have examined major interests within the Dominant Power Bloc of media corporations and the functions that the Capitalist State performs to advance the interests of that bloc. Particular emphasis was directed to the growth in significance of accumulation and repression at the expense of legitimation. What this means is that the state is now involved explicitly, to a greater extent than heretofore, in advancing the interests of a corporate-military establishment, and undermining those who oppose and seek more democratic uses of communications resources. The final leg of the triangle comprises opposing forces. As with the other components of the structural model, we present representative examples of interests with different structural positions within dominated classes and strata. Special emphasis is placed on the changing constituency of activist opposition within this group as dominated strata grow in their awareness of both the importance of communications and the state's efforts to undermine their access and control.

There is growing evidence that not only elites and their pluralist spokesmen like Huntington and Cutler are souring on established political channels. As structuralist Claus Offe argues:

> If the governability crisis is responded to through the resort of governing elites to para-parliamentary, nonpublic, informal and poorly legitimized forms of resolving policy issues often described as neo-corporatist, the participation crisis is responded to by citizens in a parallel retreat from the official channels of conflict articulation. My thesis is that, as a consequence of both processes, politics in both of the conventional meanings of the term: politics as the struggle over substantive issues and politics as the institutional form of conflict resolution degenerates into informal and mutually disconnected modes of struggle and decision. The constitutional bridge that democratic theory takes for granted is in the process of breaking down.[80]

The shift from quasi-public to explicitly private policy processes, exemplified in the communications field by the thrust for deregulation, is being matched by independent popular disaffection from established state institutions. There is evidence that communications reformers are rejecting narrow pluralist-based media policy politics and beginning to build coalitions across the range of progressive movements. This chapter focuses on such responses within the United States. Chapter Six reports on the global rejection of pluralist politics-as-usual.

Traditionally, the most substantial communications reform work has been accomplished by groups such as the National Citizens Committee for Broadcasting, the Citizens Communications Center, and Action for Children's Television. These groups have applied their limited staff and funding resources to realize in practice the public interest provisions of the Communications Act and other statutes. Their accomplishments have been modest, though sufficient to temper the most severe commercial abuses of mass media. Specifically, these groups have won public standing before regulatory bodies, required broadcasters to make some effort to respond to community problems, and have generally achieved a greater degree of public access to media than would have been possible without their hard work.[81] But just as these groups achieved a base to oppose overwhelming corporate media control, deregulation is taking it away. Proposals to end license challenges and keep the FTC from even investigating advertising on electronic media mean that citizens groups are losing most all of their essential legislative and regulatory supports. But stripping away this base also increases political alienation, the feeling of helplessness before the corporate state. For many, this means rejecting established channels and widening the area of struggle beyond the confines of traditionally narrow media reform lines. It means that public access and control of media must be tied to democratic struggles in other areas: for public control of banks, utilities, universities, etc. Expanding efforts beyond lobbying the FCC, as pluralists would suggest, or trying to "capture" an elite think tank, as the instrumentalists would support, means building a network of organization that, in their commitment to democracy, challenges not only the FCC and the informal power structure, but the general decision-making system in which the state serves capital. By its very challenge, such a network of organizations committed to democratic control can achieve more than a collection of easily co-opted individuals working for established agencies.

Difficult as this task appears, there are signs of change in the media reform area. Groups that have previously paid little attention to media issues are now heavily involved in opposition to deregulation and related actions. These include the American Federation of Teachers (AFT), the National Organization of Women (NOW), and the Machinists Union (IAM). The latter has organized and trained its rank-and-file membership to monitor television program content systematically, and oppose proposals to strengthen corporate control.[82] The broad base of popular support that such groups command suggests that struggles over media control may be more hard fought than supporters of corporate control would like to see. Figure 2–12 presents the coalition of organizations opposed to Senate attempts to deregulate the broadcasting system and thereby gut public interest concerns.

Structuralism implies more than the disaffection from state policy channels and the creation of alternative networks for democratic opposition.

FIGURE 2–12. Coalition opposed to deregulation of broadcasting

Action for Children's Television
American Federation of State, County and Municipal Employees
American Library Association
Americans for Democratic Action
Anti-Defamation League of B'nai B'rith
Association of American University Women
Association of Independent Video and Filmmakers
Citizens Communications Center
Coalition of Black Trade Unionists
Congress Watch
Consumer Federation of America
Consumers Union
Department of Professional Employees, AFL-CIO
International Association of Machinists
Media Access Project
National Black Media Coalition
National Citizens Committee for Broadcasting
National Citizens Communications Lobby
National Consumers League
National Education Association
National Organization for Women
National Parent Teacher Association
Public Media Center
United Auto Workers, International Union
United Church of Christ
United States Catholic Conference
United Steelworkers of America
Washington Association for Television and Children
Bakery, Confectionary and Tobacco Workers International Union

Source: Access, July 27, 1981.

It implies the need to create alternatives to dominant media production and distribution organizations as well. This includes using alternative technologies such as cable program distribution, video cassette and disc reproduction, and small earth satellite reception. Labor unions such as the United Auto Workers (UAW) have begun to move into this form of ideological struggle by developing community-based low-power television stations.[83] More than this, though, it means drawing on lessons from alternatives to our technology-based media system. Recent research on Mao's China, Gandhi's India, and the contemporary revolution in Iran provide sobering examples of how social movements build successful communications networks in the absence of, or in opposition to, high technology mass media.[84]

Bridging the gap between political organizations working for varying degrees of social control and media practitioners who seek to use media to advance democracy generally are groups such as the Association of Independent Video and Film Makers (AIVFM). Their recent President Dee Dee Halleck expressed clearly the position of a group trying to realize in practice the demanding implications of a structuralist view:

> Historically, the independent media producer's involvement has consisted of documenting the struggles and confrontations of other groups. Coal miners, auto workers, anti-war demonstrators, plutonium victims

> have all had their stories told by committed and supportive video- and filmmakers. There has been relatively little attempt by independents to direct their energies to changing their own material position within the dominant media structures. If these structures were considered at all, it was to make use of them—garnering the air time on the news with some Yippie-type action, or occasionally being allowed "access." . . . The activity of independents in the past two years has marked somewhat of a departure. Frustrated with the increasingly competitive and unresponsive structures of both PBS and the networks, independents have banded together to press their demands. These demands, however, are not just for access and more grant money. They are now addressing the issue of control of the system as a whole. This is a new fight and one that runs counter to a tradition of political impotence in the media field.[85]

The growing sensitivity of mass organizations to the importance of media, the growing frustration of media reformers with established government channels, and the growing political consciousness of media practitioners are important examples of how the theoretical focus of structuralism begins to find its practical realization.

Conclusion

The structuralist perspective advances the instrumentalist view by mapping the structure of dominant interests, the functions of state agencies that aim to harmonize those interests, and the struggles of opposition groups. As communications grows in significance, we can envision growing corporate state intervention to manage the demands of the dominant power bloc and deflate those of dominated classes and strata. Governability crises may indeed result from the growing disaffection from traditional forms of politics. The results of these crises will depend on how well the state is able to provide new forms of legitimation and repression, how well the dominant power bloc is able to integrate its drive for capital accumulation, and finally, how committed dominated groups are to opposing this drive and advancing democratic control of resources, including information resources.

This chapter has set the political context for understanding the significance of new communications technologies such as videotex. Without that context, videotex is a gadget; within it, videotex is a major resource in a struggle over the shape of society. Now that we have a clearer sense of the general struggle, let us narrow our focus to the resource—videotex.

Footnotes

[1]U.S., Senate, Committee on Foreign Relations, *Hearings on H.R. 11040: The Communications Satellite Act of 1962*, 87th Cong., 2d Sess., August 1962, p. 45.

[2]Gene Bylinsky, "Here Comes the Second Computer Revolution," in Tom Forester (Ed.), *The Microelectronics Revolution*, Cambridge, MA: MIT Press, 1981, p. 3. For a good capsule history of computer technology and applications, see U.S., House, Joint Committee on Congressional Operations, *Inventory of Information Resources and Services Available to the U.S. House of Representatives*, Committee Print, Washington, DC: G.P.O., 1976.

[3]Christopher J. Burns, "The Evolution of Office Information Systems," *Datamation*, April 1977, p. 62.

[4]Vincent Mosco, "Who Makes U.S. Government Policy in World Communications?" *Journal of Communication*, Winter 1979, pp. 158–164. See also Chapter Six.

[5]Figure 2–11 and the surrounding discussion examines the Pentagon's use of the radio spectrum. On the budget figure see Electronic Industries Association, "Electronic Market Data Book," Washington, DC: Electronic Industries Association, 1981, p. 67.

[6]J. Rose, "Automation: Its Uses and Consequences," in Elliott and Elliott (Eds.), *The Control of Technology*, London: Wykeham, 1976, p. 13.

[7]Harry Braverman, *Labor and Monopoly Capital*, New York: Monthly Review, 1974; Nicos Poulantzas, *State, Power, Socialism*, London: New Left Books, 1978; Immanuel Wallerstein, *The Capitalist World Economy*, Cambridge: Cambridge University Press, 1979; and Stanley Aronowitz, *The Crisis in Historical Materialism: Class, Politics and Culture in Marxist Theory*, New York: Praeger, 1981.

[8]Frank Webster and Kevin Roberts, "Mass Communications and 'Information Technology,'" in Ralph Miliband and John Saville (Eds.), *The Socialist Register, 1979*, London: Merlin Press, 1979, pp. 285–316.

[9]Louis Althusser, *Lenin and Philosophy*, New York: Monthly Review, 1971.

[10]Herbert I. Schiller, *The Mind Managers*, Boston, MA: Beacon Press, 1973, and *Who Knows: Information in the Age of the Fortune 500*, Norwood, NJ: Ablex, 1981; Graham Murdock and Peter Golding, "For a Political Economy of Mass Communications," in Ralph Miliband and John Saville (Eds.), *The Socialist Register 1973*, London: Merlin, 1973, pp. 205–234; Armand Mattelart and Seth Siegelaub (Eds.), *Communication and Class Struggle*, New York: International General, 1979; and Kaarle Nordenstreng and Tapio Varis, "The Nonhomogeneity of the National State and the International Flow of Communications," in George Gerbner (Ed.), *Communications Technology and Social Policy*, New York: Wiley, 1973.

[11]Three examples of developmentalist research are Daniel Lerner, *The Passing of Traditional Society*, Glencoe, NY: The Free Press, 1958; Ithiel Pool, *Communications, Computers, and Automation for Development*, New York: U.N. Institute for Training and Research, 1971; and Wilbur Schramm, *Mass Media and National Development*, Palo Alto, CA: Stanford Univ. Press, 1964. The leading work on post-industrialism is Bell, *The Coming of Post-Industrial Society*, op.cit. For an overview of the mass society perspective see Melvin de Fleur and Sandra Ball-Rokeach, *Theories of Mass Communication*, New York: McKay, 1975.

[12]On the origins of pluralist mass communications research see David Morrison, "The Beginnings of Mass Media Research," *Archives of European Sociology, XIX*, 1978, pp. 347–359. For a model of pluralist political science research see Karl Deutsch, *The Nerves of Government*, New York: The Free Press, 1966.

[13]Erwin Krasnow and Lawrence Longley, *The Politics of Broadcast Regulation*, second edition, New York: St. Martins, 1978.

[14]*Ibid.*, p. 101.

[15]Samuel Huntington, "The United States," in Michel Crozier (Ed.), *The Crisis in Democracy*, New York: New York University, 1975. For an excellent analysis of pluralist revisionism see Alan Wolfe, "Capitalism Shows Its Face: Giving Up on Democracy," in Holly Sklar (Ed.), *Trilateralism: The Trilateral Commission and Elite Planning for World Management*, Boston, MA: South End Press, 1980, pp. 295–307. Huntington's concern for the excesses of democracy continue in his latest book *American Politics: The Promise of Disharmony*, Cambridge, MA: Harvard University Press, 1981.

[16]Lloyd Cutler, "To Form a Government," *Foreign Affairs*, Fall 1980, pp. 125–143.

[17]Barry Cole and Mal Oettinger, *Reluctant Regulators: The FCC and the Broadcast Audience*, revised edition, Reading, MA: Addison-Wesley, 1978.

[18]Schiller, *Who Knows*, op. cit.

[19]Timothy R. Haight and Laurie R. Weinstein, "Changing Ideology on Television by Changing Telecommunications Policy: Notes on a Contradictory Situation," in Emile McAnany, Noreene Janus, and Jorge Schnitman (Eds.), *Communication and Social Structure*, New York: Praeger, 1981, pp. 110–144.

[20]Very little work has been done in this area. Two fine models are Timothy R. Haight, "The 'S.1' of Communications," *Telecommunications Policy and the Citizen*, New York: Praeger, 1979, pp. 241–266, and J. W. Freiberg, *The French Press: Class, State and Ideology*, New York: Praeger, 1981.

[21]Ralph Miliband, *The State in Capitalist Society*, New York: Basic, 1969, p. 23.

[22]New York: Vintage, 1979.

[23]U.S., Congress, Senate, Committee on Governmental Affairs, *Structure of Corporate Concentration*, Vol. I, December 1980, pp. 25–26.

[24]*Ibid.*, p. 26.

[25]U.S., Congress, Senate, Committee on Governmental Affairs, *Interlocking Directorates Among the Major U.S. Corporations*, January 1978, p. 102.

[26]Peter Dreier and Steve Weinberg, "Interlocking Directorates," *Columbia Journalism Review*, November/December 1979, p. 51.

[27]According to one Congressional report on the impact of bank ownership, "even 1 or 2 percent of stock in a publicly held corporation can gain tremendous influence over a company's policies and operations." See U.S., House, Committee on Banking and Currency, *Commercial Banks and Their Trust Activities*, Vol. 1, 90th Cong., 2d Sess., Washington, DC, p. 9. For an excellent analysis of financial control of the film industry see Janet Wasko, "The Political Economy of the American Film Industry," *Media, Culture and Society*, April 1981, 3 (2), pp. 135–153.

[28]In 1981 Walter Annenberg applied his financial power in a dispute with the Canadian government. Still smarting from a 1976 change in Canadian tax laws that limited the profits of his *TV Guide* in Canada, Annenberg took out a full page ad in *The Washington Post*. Under the headline "Canada's Unfairness Doctrine," Annenberg took issue with a Canadian regulation that prevents more than 20% foreign ownership of Canada's cable systems. He concludes the ad with a retaliatory threat on a proposed trans-Canada gas pipeline:

> Certainly it would seem safer to liquefy the Alaskan gas and ship it south by tanker rather than send it through a vulnerable pipeline that could be plugged at any time by Ottawa.

Maclean's, November 16, 1981, p. 47.

[29]For an overview of contending forces see Vincent Mosco, "Political Power and Public Access," *Public Telecommunications Review*, July 1979, pp. 6–13.

[30]For a generally supportive report on the formation of elite communications policy institutions see Ithiel de Sola Pool, "The Rise of Communications Policy Research," *Journal of Communication*, Spring 1974, *24*, pp. 31–42. *The Journal of Communication* is a leading source

of scholarly material on communications. It is published by the Annenberg School of Communications at the University of Pennsylvania.

[31]Haight, *Telecommunications Policy and the Citizen*, op. cit., p. 252.

[32]The Conference Board, *Information Technology Initiatives for Today—Decisions That Cannot Wait* and *Information Technology: Some Critical Implications for Decision Makers*, New York: The Conference Board, 1972.

[33]In addition to *The Powers That Be*, pp. 67–69, see Domhoff's *The Higher Circles*, New York: Random House, 1970, pp. 191–195.

[34]New York: Committee for Economic Development, 1975, p. 17.

[35]Sloan Commission on Cable Communications, *On the Cable*, New York: McGraw-Hill, 1971. The Carnegie Commission on the Future of Public Broadcasting, *A Public Trust*, New York: Bantam, 1979.

[36]Two recent examples underscore this point. The three major television networks refuse to set aside time to conduct an open debate on broadcast deregulation among all major interests. These same networks refused to participate in a nationally televised debate on the issues of sex and violence on television. The first offer was made by Ralph Nader through the National Citizens Committee for Broadcasting; the second by Ted Turner, President, Cable News Network.

[37]Les Brown, "Reagan and the Unseen Network," *Channels*, October/November 1981, pp. 17–18.

[38]These are the most extensive of the hearings: U.S., House, Committee on Interstate and Foreign Commerce, Subcommittee on Communications, *The Communications Act of 1978*, Washington, DC, 1979 and U.S., Senate, Committee on Commerce, Science, and Transportation, Subcommittee on Communications, *Ammendments to the Communications Act of 1934*, Washington, DC, 1979.

[39]Karen Heald, "Federal Participation in Electronic Information Delivery." (Paper at the Conference on Culture and Communications, Temple University, April 10, 1981), p. 1.

[40]Veronica Ahearn, "How I Became a True Believer in the Marketplace," *Intermedia*, November 1980, 8, pp. 10–11.

[41]Merrill Brown, "FCC Changes in Broadcasting Rules Pledged," *Washington Post*, June 13, 1981.

[42]Nicos Poulantzas is the leading proponent of a structural perspective on the capitalist state. His major works are *Political Power and Social Classes*, London: New Left Books, 1973, *Classes in Contemporary Capitalism*, New Left Books, 1975, and *State, Power, Socialism*, New Left Books, 1978. An excellent analysis of his work is George Ross, "Nicos Poulantzas, Eurocommunism, and the Debate on the Theory of the Capitalist State," *Socialist Review*, March–April, 1979, pp. 143–158.

[43]For a discussion of the wider implications of the IBM project see Robert Jacobson, "Satellite Business Systems and the Concept of the Dispersed Enterprise: An End to National Sovereignty?" *Media, Culture and Society*, 1979, *1* (3), pp. 235–253.

[44]Comsat devotes an entire issue of its journal to the DBS project of its subsidiary the Satellite Television Corporation. See *COMSAT*, 1981 (5).

[45]For an analysis of this trend, see Robert G. Meadow, "The Political Dimensions of Nonproduct Advertising," *Journal of Communication*, Summer 1981, pp. 69–82.

[46]For a description of SWIFT see Luc Vekeman, "The SWIFT System," *Transnational Data Report* October 1980. On Biznet, see *New York Times*, "Chamber of Commerce Plans TV Net," December 5, 1981.

[47]For an excellent analysis of how multinational corporate users have shaped the telecommunications policy system, see Daniel Schiller, *Telematics and Government*, Norwood, NJ: Ablex, 1982.

[48]Robert Stephens, "Telidon Equipment Favored by AT&T: Victory for Canada," *Toronto Globe and Mail*, May 21, 1981, pp. 1–2.

[49]Daniel Machalaba, "Hot Off the Screens," *The Wall Street Journal*, January 2, 1981.

[50]"He Sees Censorship in Call for TV Boycott," *Philadelphia Inquirer*, June 22, 1981.

[51]Merrill Brown, "CBS-AT&T Contract on Home-Video Test Reported Near," *Philadelphia Inquirer*, September, 24, 1981.

[52]The basic research on this topic is reported in Marc Uri Porat, "The Information Economy," *Scientific American*, October 21, 1976, pp. 4–7. A good cross-national analysis is contained in Shirley Serafini and Michel Andrieu, *The Information Society and its Implications for Canada*, Hull, Quebec: Minister of Supply and Services Canada, 1981. This is discussed in greater length in Chapter Five.

[53]Arthur A. Bushkin and Jane H. Yurow, *The Foundations of United States Information Policy*, Washington, DC: U.S. Department of Commerce, 1980, p. 3.

[54]The Committee on Economic Development recognized the failure of OTP to serve the wider corporate interest. In its 1975 report on *Broadcasting and Cable Television*, op. cit., the CED accuses OTP of

> encroaching on the regulatory authority of the FCC and issuing threats to both commercial and noncommercial broadcasters. This deviation from its stated purpose tended to obscure the valuable research and coordinating work being performed by OTP. (p. 87).

[55]The Communications Act of 1978 proposed this streamlined version of the FCC, renamed the Communications Regulatory Commission. See U.S., Congress, House, Committee on Interstate and Foreign Commerce, Subcommittee on Communications, *Hearings on H.R. 13015: The Communications Act of 1978*, 95th Cong., 2d Sess., Washington, DC: Government Printing Office, 1978.

[56]For a good summary of this process, see Les Brown, "Where Are We? (And How We Got There)" *Channels*, April/May 1981, pp. 29–31.

[57]*Access*, July 13, 1981, p. 4.

[58]U.S., Congress, House, Committee on Interstate and Foreign Commerce, Subcommittee on Communications, *International Communications Services*, Washington, DC: Government Printing Office, 1977, pp. 327–343.

[59]Alan Wolfe, *The Limits of Legitimacy*, New York: The Free Press, 1977.

[60]Bertram Gross, *Friendly Fascism*, New York: Evans, 1980.

[61]On the Federal Trade Commission's decision to back off from the issue of children's advertising see U.S., Federal Trade Commission, *FTC Final Staff Report and Recommendat ons in the Matter of Children's Advertising*, Washington, DC: FTC, 1981.

On elite recommendations for the commercialization of public broadcasting see Carnegie Commission on the Future of Public Broadcasting, *A Public Trust*, New York: Bantam, 1979. On how the public broadcasting establishment has translated these recommendations into plans for the system see Sheila Mahony, et al., *Keeping PACE with the New Television: Public Television and Changing Technology*, New York: The Carnegie Corporation of New York, 1980.

[62]The White House, Office of the Press Secretary, "Statement by Richard V. Allen," September 23, 1981. Actually, Cubans have listened to Miami's AM radio stations for years, as well as to Voice of America broadcasts. Moreover, Jose Marti is noted for warning his newly independent country about the dangers of U.S. imperialism. As he said, "Once the United States is in Cuba, who will get her out?" Cited in Philip S. Foner, *The Spanish-Cuban-American War and the Birth of American Imperialism 1895–1902*, New York: Monthly Review, 1972, Vol. I, p. xxx. On the Reagan administration's overseas information policies, including a memo on Project Truth, see Murrey Marder, "U.S. Sharpening Information Policy Overseas," *Washington Post*, November 10, 1981.

[63]On the DOD budget see Electronic Industries Association, *Electronic Market Data Book*, Washington, DC: Electronic Industries Association, 1981, p. 67. According to the research division of *Broadcasting*, total revenues for radio and television for 1980, the last year for which figures are available, were $11.9 billion. The Reagan Administration proposes to increase Defense spending for communications and intelligence to $18 billion in 1983 and $24.6 billion in 1985. See U.S., Executive Office of the President, *Budget of the United States Government: Fiscal Year 1983* (Washington, DC, 1982), p. 5–11.

[64]Pacific Studies Center, *Global Electronics Information Newsletter*, September 1981, (14), p. 2.

[65]Merrill Brown, "Bill Shifts Phone Role to Military: Senate Legislation Would Give Defense Regulatory Powers," *Washington Post*, September 27, 1981; Larry Margasak, "AT&T Critical to Defense, Court Told," *Philadelphia Inquirer*, December 18, 1981.

[66]Merrill Brown, "Bill Shifts Phone Role . . .," op. cit.

[67]On the general debate over the recent nuclear buildup see E. P. Thompson, "Notes on Exterminism, the Last Stage of Civilization," *New Left Review*, May–June 1980, pp. 3–31 and Raymond Williams, "The Politics of Nuclear Disarmament," *New Left Review*, November–December 1980, pp 25–42. For a perceptive analysis of how the Pentagon has controlled media coverage of the military buildup see Roger Morris, "Reporting for Duty: The Pentagon and the Press," *Columbia Journalism Review*, July–August 1980, pp. 27–33.

[68]James Schefter, "Military Anticipates Shuttle to Bring Big Boost on Space Front," *The Washington Star*, March 24, 1981, p. A-8.

[69]For a discussion of submarine communications and nuclear war see Robert C. Aldridge, "ELF: First Strike Radio, The Underground Trigger Finger," *The Nation*, June 16, 1979, pp. 714–716. See also his *The Counterforce Syndrome*, Washington, DC: Institute for Policy Studies, 1980. On the uses and dangers of directed energy or laser communications for submarine contact see "Laser Beams Studied for Space-To-Sub Communications," *The San Diego Union*, May 31, 1981, p. A-22. On satellite war possibilities see Mark C. Hallam, *Star Wars Revisited: A Look at the Arms Race in Outer Space*, Washington, DC: SANE, 1978 and "Nuclear Hardened, Autonomous Satellites Readied for Launch," *Defense Electronics*, September 1981, pp. 78–85. The creation of military communications systems that can survive a nuclear attack is central to the Reagan Administration's military program. As the White House puts it:

> The Reagan program will, within the next four to eight years, redress the most serious weaknesses in our current posture.
>
> Communications and control systems will be improved to make sure we could communicate with our strategic forces, even after a nuclear attack. . . .
>
> We will initiate a vigorous and comprehensive R&D (research and development) program leading to a communications and control system that would endure for an extended period beyond the first nuclear attack.

New York Times, October 3, 1981.

[70]For a perceptive analysis of Reagan Administration efforts to restrict the free flow of information in the United States see Ralph Nader, "Don't Let the Sunshine In," *The Nation*, November 7, 1981, pp. 470–473.

[71]Reprinted in Geoffrey Rips, "The Campaign Against the Underground Press," in Anne Janowitz and Nancy J. Peters (Eds.), *Unamerican Activities*, San Francisco, CA: City Lights Books, 1981, pp. 61–63.

[72]*Ibid.*, p. 59. For a detailed analysis of how the Internal Revenue Service attacks the alternative press in the U.S. see Angus MacKenzie, "When Auditors Turn Editors: The IRS and the Nonprofit Press," *Columbia Journalism Review*, November/December 1981, pp. 29–34. On

Reagan Administration efforts to expand CIA powers see Judith Miller, "Reagan Draft Order Said to Allow Wider Intelligence Activity in U.S.," *The New York Times*, October 6, 1981.

[73]U.S., Congress, House, Committee on Government Operations, *Interception of Non-verbal Communications by Federal Intelligence Agencies*, 94th Cong., 1st and 2nd Sess., Washington, DC: Government Printing Office, 1976.

[74]*Ibid.*, p. 54.

[75]David Kahn, "Cryptology Goes Public," *Foreign Affairs*, Fall 1979, 58 (1), p. 146.

[76]*Ibid.*

[77]Loring Wirbel, "Somebody is Listening: There's A Computer on the Line," *The Progressive*, November 1980, pp. 16–22.

[78]David Burnham, "Security Agency Plays Major Role in Policies on Communications," *The New York Times*, February 1, 1979. On NSA bugging activities in Great Britain see Duncan Campbell, "Thatcher Bugged by the Closest Alley," *New Statesman*, July 1980, p. 4; in Australia, Peter L. Young "America's Mysterious 'Space Base' Down Under," *The Progressive*, July 1980, pp. 31–33.

[79]Herbert Schiller, *Mass Communication and American Empire*, op. cit., pp. 34 ff. For an overview of U.S. government spectrum allocation see Lee Buss and Robert L. Cutts, "The Use of Radio Telecommunications in the Federal Goverment of the United States," *Telecommunications Journal*, June 1980, *47*, pp. 314–334.

[80]Claus Offe, "The Separation of Form and Content in Liberal Democratic Politics," *Studies in Political Economy*, Spring 1980, p. 11.

[81]On the achievements of the media reform movement see Anne Branscomb and Maria Savage, "The Broadcast Reform Movement: At the Crossroads," *Journal of Communications*, Autumn 1978, pp. 25–34.

[82]For reports on the Machinist Union monitoring projects contact IAM Media Project, 1300 Connecticut Avenue, N.W., Suite 909, Washington, DC 20036. For a summary of these reports and other labor monitoring projects see Vincent Mosco and Janet Wasko (Eds.), *Labor, the Working Class and the Media*, Norwood, NJ: Ablex, 1982.

[83]*Access*, June 1, 1981, p. 3.

One reason why labor unions are beginning to produce their own media is because established media institutions have ignored labor unions. This is particularly the case with the Public Broadcasting System. In 1980 PBS rejected a planned TV series on labor history called *Made in U.S.A.* PBS did so because 16 labor unions provided 25% of the funding for the project. PBS justified the decision with this statement:

> Business is much broader than labor. Corporations put their profits into a wide variety of things. Labor unions are only going to put money into something in which they have a vested interest.

Nevertheless, PBS has supported explicitly pro-corporate programs such as Milton Friedman's "Free to Choose" and "Enterprise," despite overwhelming corporate funding. It is actions such as this that threaten the legitimacy of established institutions (Is it the Public or the Petroleum Broadcasting System?) and lead groups such as trade unions to disengage and develop their own media structures.

See *In These Times*, March 5–18, 1980, p. 13.

[84]*Journal of Communications*, Summer 1979, pp. 83–112.

[85]Dee Dee Halleck, "Mind Power: Collective Action for Media Reform," *Rockefeller Papers on Independents and Public Television*, New York, 1980, p. 109.

3

What is Videotex?

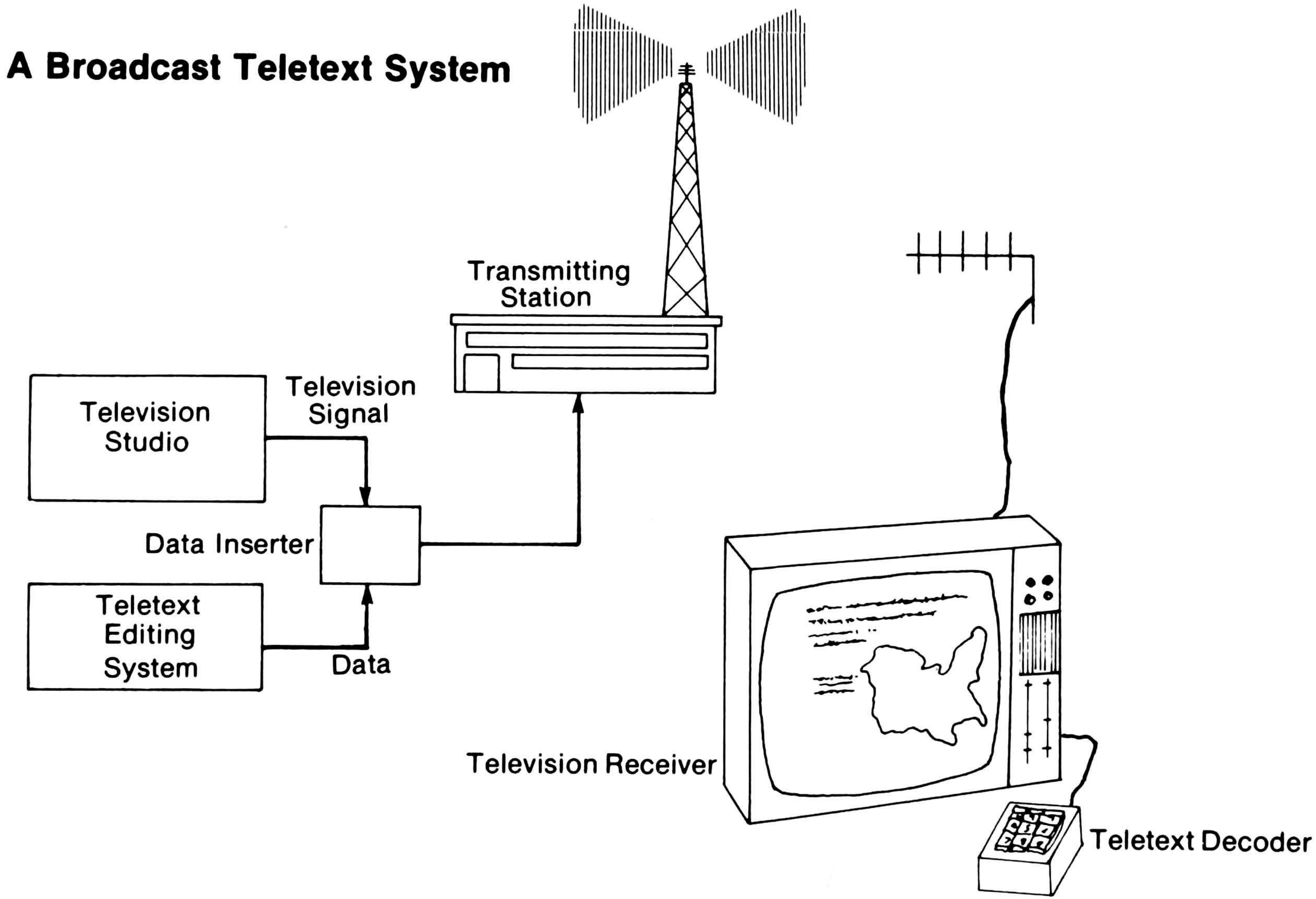
Videotex is embedded in the power structure that we have just described. The television screen on which CBS has built a media empire is the basic videotex display device that CBS is using in its field trials of the service. The television is linked to computers that have made IBM a global power. The linking device is the telephone line—the conduit through which AT&T has created the largest business corporation in the history of the world. As we shall see, there are variations on this television-computer-phone connection. For example, coaxial cable provided by a cable television company such as Time Inc. can replace the telephone link. From whatever angle we view it, videotex grows out of the hardware, software, and interests of the telecommunications *powers that be*.

The Fundamentals: Teletext

Teletext and videotex are the current generic terms to describe data transmission systems that bring information to viewers over a modified television receiver. Data is typically transmitted over broadcast television channels (teletext) or phone/cable circuits (videotex) (Figure 3–1).

Teletext is the term commonly applied to the broadcast version of

FIGURE 3–1. A teletext system.



Source: Institute for the Future, *Newsletter*, 1979, 2 (1), p. 1.

videotex. It is essentially a one-way system that supplies digital data on the normal broadcast signal by placing messages in the unused lines of the standard television signal, also known as the Vertical Blanking Interval (VBI). The VBI is the dark bar that sometimes appears when a standard broadcast television picture "rolls," requiring the viewer to adjust a dial. A viewer with a television modified for teletext has a control keypad. This comes in a variety of forms, though the typical keypad resembles a hand calculator. The teletext viewer pushes keypad buttons to turn off regular television fare and display frames of text or picture material. One typically starts with an index that indicates what is available on different "pages." Figure 3–2 is a replica of one such frame taken from the British Ceefax teletext service broadcast over BBC Channel One. Selecting page 101 on the keypad brings the viewer news headlines. From there, he or she can access the details of specific stories or move to another story. Teletext is considered a one-way system because the viewer is restricted to information that the station decides to transmit. While such information is regularly updated, with updates based in part on viewer selections, there is no way for the viewer to request information in addition to or different from what the station offers.

To understand the basic workings of a teletext sysytem, let us begin with the information—the News Headlines appearing on page 101 of Ceefax BBC-1. The information is edited in a studio and coded in digital form for transmission at a rate that an ordinary TV set can handle. The transmission or bit rate is important because a low rate means a longer turnover time for pages, and thereby causes the viewer to wait longer for information. European systems can use higher bit rates for teletext than can North American systems, because European television channels are "wider," i.e., they use more bandwidth. The information, now encoded in digital form, is inserted into the television signal on unused lines or the VBI. The more lines of VBI, the more information and the faster the viewer access time. Some teletext services use a full channel, set aside solely for teletext use. Cable television systems with 32+ channels more commonly make use of full-channel teletext than do standard broadcast systems with under a dozen channels. The digital signal can be detected by a decoder built into the television receiver or wired as an accessory to an ordinary television. The decoder receives, stores, and ultimately displays the data on viewer command. That command is signalled on the control keypad which directs the decoder to transfer the desired page to the screen. A character and graphics generator built into the decoder transfers the page onto the screen. The page is removed when updated information, such as an hourly News Headline edition, is provided.

The teletext "newspaper" or "magazine" of pages is transmitted continuously. The recycle time of each page determines how long a viewer has to wait before receiving the News Headlines, weather report, or recipe that his or her keypad selection called for. If the magazine contains 200 pages and

FIGURE 3–2. BBC-1 ceefax program index.

Contents: Page 100 (BBC-1)

NEWS
Headlines 101
News in detail 102–116
News Diary 117
People in the News 118
Charivari—a lighter look at the News 119

FINANCE
Index 120
News and Reports 121–126
Market Reports 127–129
FT Index 130
Stocks and Shares 131–133
Exchange Rates 134–136
Commodities 137–138

SPORT
Headlines 140
Sports News 141–159
CEEFAX provides a rapid service of news, results and background. CEEFAX Sports Specials, covering major sporting events, begin on 151.

FOOD GUIDE
Headlines/Index 161
Shopping Basket 162
Meat Prices 163
Fish Prices 164
Vegetable Prices 165
Fruit Prices 166
Recipe 167
Farm News 168–169

ENTERTAINMENT
Today's TV—
BBC-1 171
BBC-2 172
ITV 173
Radio highlights 174
Films on TV 175
Top Twenty 176
Theatre 177
Opera/Ballet 178
Viewers' Questions 179

WEATHER AND TRAVEL
Headlines/Index 180
Weather Maps 181
Temperatures 182
Temperatures 183
Travel News 184–189

NEWSFLASH 150
Turn to this page to watch television program—when something important happens a NEWSFLASH will appear on the picture.

ALARM CLOCK PAGE 160
This page can change every minute. It can also be used as a silent alarm clock.
Turn to page 160 for instructions.

SUBTITLES 170
The BBC is experimenting with various ways of subtitling programs. This page shows how subtitles could look.

LATEST PAGES 190
As each new page is put in the magazine it is also put on 190 where it alternates with a news summary.

OTHER PAGES
News about CEEFAX 191
Engineering tests 197–198

FULL INDEX
A–F 193
G–O 194
P–Z 195

WANT TO KNOW MORE?
Write to:
CEEFAX Newsroom
· (7059)
BBC Television Centre,
LONDON, W12 7RJ

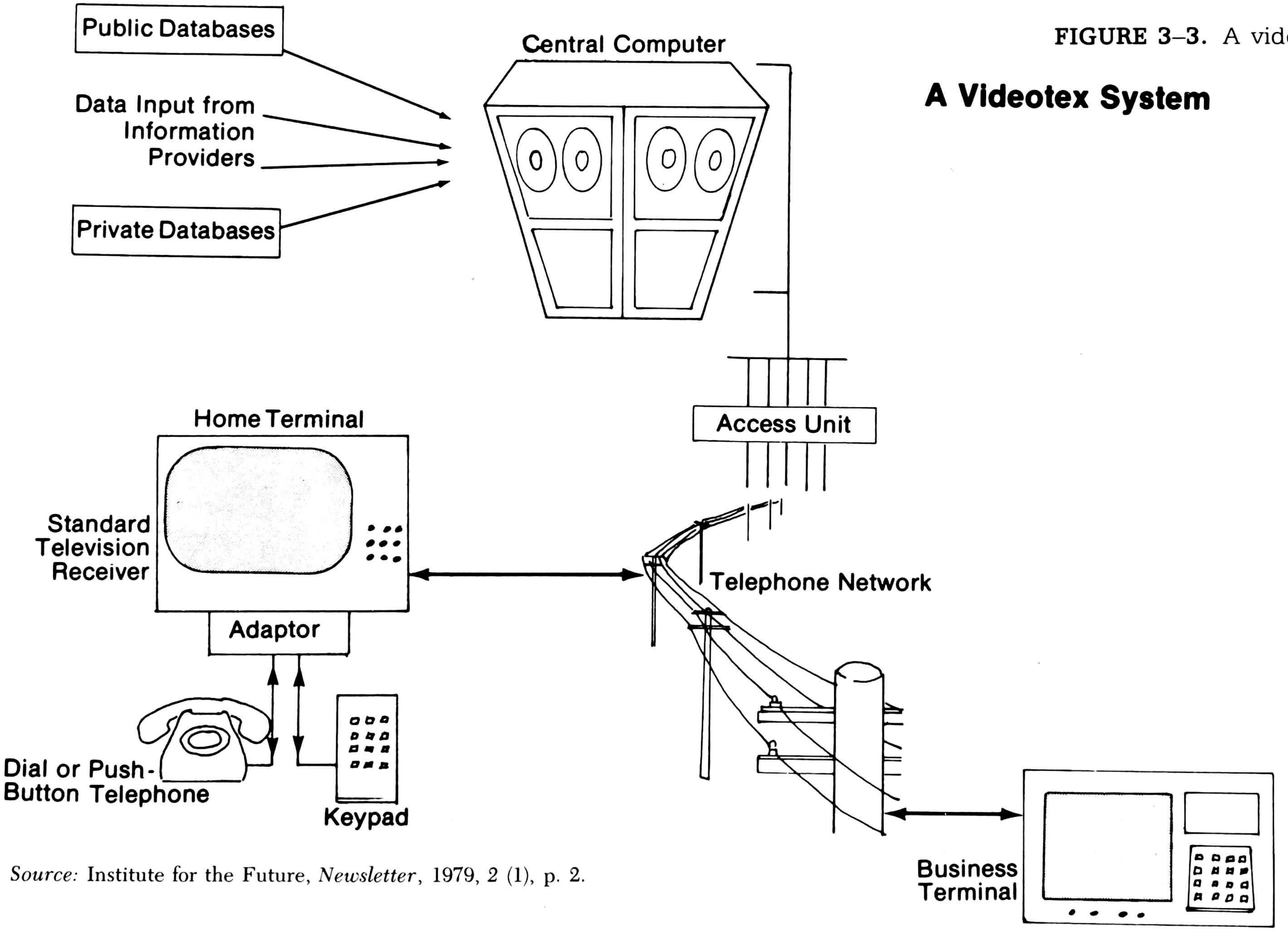
Source: Colin McIntyre, "Teletext in Britain: The CEEFAX Story." In Efrem Sigel (Ed.), *Videotext: The Coming Revolution in Home/Office Information Retrieval.* White Plains, NY: Knowledge Industry Publications, 1980, p. 36.

a new one is transmitted every eighth of a second, then the maximum waiting time for a particular page is 25 seconds. Access time on the BBC-1 and BBC-2 services is about 12 seconds for 250 pages of material and about 25 seconds for the 375 pages transmitted over the commercial channel.[1] Most people are accustomed to access times considerably under these figures—the time it takes to turn the page of a book or flip through a newspaper, for example. This time is an especially important parameter that teletext operators would like to minimize. Several factors in addition to bit rate and page volume determine access time. These factors include the number of television lines dedicated to teletext reception. Here, as in channel bandwidth, Europeans have the advantage. European television receivers contain 625 lines, 100 more than their North American counterpart. The less adequate 525-line system is the price that North Americans have to pay for permitting RCA and CBS to pressure the FCC into the early acceptance of broadcast television standards. European receivers are better equipped to receive teletext information in shorter access time.[2] A final major factor shaping access time is the amount of memory in the decoder. The accelerating decline in the cost of computer memory, due to advances in solid state electronics, will allow for faster access to stored information.

Since teletext relies on existing television sets, on equipment that almost everyone has in the home, teletext promises to develop into a mass medium. But this does not mean that everyone equipped to receive teletext will have access to the same information. For inexpensive variations in transmission code could limit access to certain pages to users with decoders specifically designed to receive those pages. This opens the way for scaled pricing of teletext services, a more refined version of the add-on characteristic of current cable/pay-television franchises. In Arlington, Virginia, I could buy a basic cable service for $10 a month. If I want Home Box Office, a noncommercial movie channel, or a "culture" channel featuring opera, ballet, symphony music, I would pay another $10 for each. Certainly, one can foresee teletext "Closed User Groups" for special needs users such as travel agents, doctors, etc. But it is also likely that information useful to a wide segment of the population, on insurance companies with the best performance ratings or on savings accounts that pay the highest interest, will only be available to those with the money to pay for the information. We return to this important social consequence of teletext below. At this point it is important to understand that teletext technology holds the same potential for intensifying (or rectifying) the maldistribution of information as does the more technically advanced videotex service.

The Fundamentals: Videotex

Videotex, or Viewdata as it is less frequently known, allows a subscriber interactive use of large amounts of information. Rather than simply *selecting* from the *100* or so pages that the teletext service broadcasts, the videotex



Source: Institute for the Future, *Newsletter*, 1979, 2 (1), p. 2.

FIGURE 3–3. A videotex system.

A Videotex System

user can process thousands of pages of data, contribute to an existing data base, and conceivably communicate this action to other subscribers, thereby multiplying the connections exponentially. More concretely, videotex supporters see the service opening the way to new forms of learning, shopping, banking, communicating, and indeed, working.[3] The basic components of a videotex service include:

1. Information retrieval and display terminals.
   These can be ordinary color television sets instrumented with a decoder to translate digital signals into a visual display. They can also be modified computer terminals equipped with a color display. The retrieval-response device can range from the teletext calculator-like keypad to a full typewriter-like unit that permits vastly more commands than the 10-digit keypad allows.
2. Transmission lines for interactive communication.
   The distribution mechanism for a videotex system can be the phone lines that currently comprise the public-switched telephone network, a cable television coaxial cable network, a communications satellite system, microwave facilities, and combinations of these. The greater reliance on wired distribution makes possible the circulation of many times more information than is possible with a broadcast teletext service.
3. Computer hardware and software.
   The TV or related hardware display device is linked to a computer with a storage capacity of thousands of pages. Specific programs permit users rapid access to this information, as well as record the activity of users for billing.

In a number of respects, the development of videotex is a far riskier proposition than teletext. It is by no means certain that the costs in computer hardware, programs and production, editing and regular updating of information can be offset by user payments. Videotex is not as obviously a mass medium as is teletext. Will advertisers support a service whose principal values appear to be the ability to pursue individual information interests and to interact with other subscribers? Of course, videotex offers more opportunities for Closed User Groups than does teletext. It is quite possible that multinational corporations, from banks to tourist companies, will find attractive the rapid, flexible, and private networks that videotex allows them to construct. The result would be a scale of users ranging from basic teletext services, *Time* magazine on the air, with mass appeal and mass advertiser support, to high-priced, specialized videotex services with appeal to large corporate users. The distribution of information would closely follow this scale, so that those with the money to support the more expansive videotex

systems would have access to far greater communications/information resources than those without. The gap between the information rich and poor would grow.

Development of Teletext/Videotex Systems

With all due respect for the arbitrariness of technological beginnings, it is useful to start a discussion of the development of videotex in both its broadcast and wired forms with the British Ceefax experience. The British have led in the research and commercial application of videotex, though developments in France, Canada, and Japan have not lagged far behind. U.S. companies have been slow until recently to move on this specific product of the information age. Though as we see below, these companies are now taking advantage of years of experience with the building blocks of videotex to narrow the gap. Let us explore in more detail the development of videotex services and current applications in these and other leading videotex countries.

Teletext services in Britain grew out of the interest that BBC engineers had in providing broadcast services to the deaf and to Britain's several language minorities. This interest led to the development of "closed captioning" which would provide subtitles to people with decoding devices. By 1971 this specific application grew into proposals for a more general service based on the broadcast teletext principle. Advances in computer technology and data transmission led a BBC research group to come up with the basic elements of a teletext system by 1972. At about this time, a team working at the British commercial television station, the Independent Broadcasting Authority, developed a system similar to the BBC's newly dubbed Ceefax (for 'see facts" or "BBC-facts," depending on whom you ask). Not to be outdone in the creative naming department, IBA called its teletext service, ORACLE, short for Optional Reception of Announcements by Coded Line Electronics.

The first CEEFAX lab trials took to the air in 1973. Satisfied with the technical success of these tests, BBC management gave the okay for a two-year market trial to begin in September 1974. This trial also convinced enough of management that teletext contained substantial market potential to get government approval for a commercial system to begin toward the end of 1976.

There are currently three teletext channels in use throughout Britain. The BBC operates two, and the third is under the management of the commercial IBA. Teletext experienced its sharpest growth in Britain beginning in 1980. From 40,000 teletext sets in use at the start of that year, the population grew to 150,000 by March 1981. Since each set is estimated to be used by three people, teletext "readership" reached the half-million point by

mid-1981. While representing substantial growth, these figures are under the estimate of the British Radio Equipment Manufacturers Association which had anticipated 300,000 sets and 900,000 users by the end of 1980.[4]

The teletext receiver costs about 120 pounds more than a standard television set. Decoder costs are declining thanks to the mass production of semiconductor chips. Nevertheless, the majority of teletext sets are rented in Britain, a pattern that is common in standard television as well. This pattern makes Britain particularly well suited to the growth of video innovations. Most people view teletext not as a 120-pound additional initial investment, but as a one-pound additional weekly charge.[5] Despite the popularity of teletext rentals, a detailed study of teletext users reveals that:

> they come from the professional or skilled occupational classes, are generally more prosperous than the population at large, and are generally heavier users of information of all sorts, including libraries.[6]

The BBC has 20 people running both its teletext services on an annual budget of 200,000 pounds. These funds, as well as the 500,000 pounds in capital investment, have come from the national license fee that supports the entire BBC. Standard television viewers have therefore subsidized the development of the BBC teletext service. A 1981 Act of Parliament opens the way to teletext advertising. Under the Act, the IBA is permitted to sell 15% of its pages to advertisers.

The mainstays of UK teletext content are the wire service news, sports, weather, travel information, TV/radio program listings, light entertainment, and captioning for the deaf. Market research studies indicate that the average teletext subscriber makes use of the service for about two hours a week.[7]

Prestel

A clue to the future direction of videotex services is contained in the origins of the first such service—British Prestel. Credited with inventing the idea is a British Post Office research engineer Sam Fedida. According to the electronics correspondent of the London *Financial Times:*

> Fedida started to develop the idea during the late 1960s, when he was working on a computer system to keep track of vacancies in European hotels. He found that 80% of the cost of this system represented salaries and overhead in the central bureau that operated the computer information service. This was because the system required clerks to interrogate the computer on behalf of the customer. How much the better, Fedida thought, if the system could be designed so that the

> customer could look up available vacancies for himself. The system would become "self-service" and a large part of the labor costs would be saved.[8]

For all the discussion of interactive home video, the roots of videotex lie in the drive to increase productivity and profit by cutting labor costs. By 1974 Fedida and his team of British Post Office engineers had convinced B.P.O. officials that videotex development was a worthwhile investment. In addition to the broader promise of reducing labor costs, videotex might increase telephone usage in Britain where only about 60% of households have phones.

After five years of development, British Telecom (once the British Post Office Telecommunications Division) launched the first commercial videotex service in September 1979. Prestel reached 13,000 sets in use by October 1981 for a total readership of about 25,000. This makes Prestel the world's largest computer-based information service. Nevertheless, growth is not running at anticipated exponential rates. Rather, a slow though steady increase of 500–600 sets a month was reached by mid-1981.

Unlike the Ceefax service, most Prestel subscribers are businesses. As of October 1981, 87% of all users fell into the business category. Twenty percent of all Prestel subscribers are travel agents. This represents 40% of all travel agents in Britain. The other major subscribers are in the fields of investment (*The Financial Times* was an early information provider), computers and electronics, print publishing, and education.[9]

The average use of Prestel is for about nine minutes a day or 142,000 frames of information, up from a 1980 average of 56,000 frames. Excluding local telephone charges, the average Prestel user pays about 100 pounds a year for the service. The price of a Prestel set ranges from 200 pounds for a system with a simple numeric keypad to 1,500 pounds for one with a typewriter-like alphanumeric keyboard. Sets rent for about 25 pounds a month.

By October 1981 some 650 British and foreign Information Providers (IP) had booked 200,000 Prestel pages and had actually filled 180,000 of them. The most successful IP earns about 50,000 pounds a year. Prestel collects this revenue and pays it to the IP after deducting a 5% service charge. Not all IPs are earning revenues. According to an executive from one of the more successful IPs, success is only achievable through a tenacious market orientation:

> In those dewy-eyed days viewdata promised to be all things to all people; it would revolutionize everybody's life at home, at work and at study. It would allow all points of view to be brought to all, open up society and do virtually everything except find a cure for cancer. "Bet-

ter information" was the cry; "accessible by all" was the message; and for an entry fee of some 2,000 pounds anybody could launch the equivalent of a national newspaper. . . .

We are now in the real world, and the fantasies of the test service era have faded. The information provider community is polarizing, leaving in the business those who are taking a proper and commercial approach with professional application and who can invest properly in a new medium. It is a pity, perhaps, that there is no cheap and universal channel for the small and the worthy, but computers and data storage cost money, the telephone network does not operate itself, the common indexing and other central services need people and editing terminals cannot be obtained on charity. There is a price to be paid for everything.[10]

"There is a price to be paid for everything." If there is one sentence that captures the views of people participating in the first commercial videotex operation, it is that. There are enormous pressures on Prestel producers to reach a threshhold of market penetration that will establish the viability of videotex services. These pressures are particularly intense because the British government appears to be prepared to let Prestel sink or swim on its own commercial ability. Such pressures filter down to the producers of videotex information. Information providers succeed or fail on their ability to convince enough people to pay the frame fee that Prestel clearly indicates on each page of information. As a result, the system is skewed in the direction of marketing services to those who can afford to buy or lease Prestel sets, and is providing information to those who can afford both sets and information. Prestel therefore means updated commodity market prices and not the location of social service agencies and health clinics. As one experienced analyst of British videotex put it:

> Prestel . . . is now obliged to be commercially viable to the extent that there is no financial support for sponsoring social uses. CEEFAX and ORACLE manage to provide a service to deaf users, but as Colin McIntyre (CEEFAX editor) puts it: "unsupported by government grants." So where community and social group uses have developed in UK, they have sometimes done so in spite of the prevailing commercial atmosphere.[11]

It is too early to offer a complete assessment of Prestel. However, the direction of development is clear: The need for immediate commercial success means cutting back on earlier mass marketing efforts and an emphasis on specific business uses.

France: Videotex as the Cornerstone of Telematique

The French approach to the development of telecommunications technologies differs from the British in that there is more explicit government direction to the French effort. In fact, videotex represents one part of a wider government program in *telematique*, a neologism coined by Simon Nora and Alain Minc in their influential report to the President of France on the *Computerization of Society*.[12] This report laid the groundwork for a substantial government investment in the French telecommunications industry. Nevertheless, while the degree of government planning and involvement distinguishes the French from the British effort, the purposes are similar. The most important condition that the Nora/Minc report calls on the French government to meet is

> First, the increase in competitiveness, matched with an industrial policy adapted to the new international division of labor, must generate an increase in markets. The restoration of foreign financing will make it possible to stimulate new domestic demand, thus increasing employment. Financing could then come from the excess in productivity.[13]

One basic element of the French telematics program is modernization of the nation's long-derided phone system. From 1975 to 1980 the French government organized a $30 billion program that has increased the number of lines from 7 to 16 million. The government plans to continue the sharp growth in equipment and further modernize the system with the introduction of digital exchanges. The French hope to maintain the 5–7% increase in equipment and thereby match the anticipated West German phone population of 24 million by 1985, and 30 million by 1990. Furthermore, current plans call for adopting digital switching in half the system by 1985 and over three fourths by 1990.[14] This will provide a base for enabling subscribers to take advantage of the telematics products that French industry is producing. Ironically, the French are now benefitting from their earlier lack of telecommunications development. With few products and vested interests to overturn, the way is clear for France to establish an advanced mass network.

The first major advance into that telematics field is the introduction of mass-market products including videotex, teletext, remote copiers, and point-of-sale terminals. The element of this program that has received the widest attention is the government plan to offer free to every phone subscriber in France an interactive videotex terminal whose principal initial use will be to provide a "Yellow Pages" Directory Service. This may make France the first country in which most homes will be equipped with a

computer terminal. The current plan is to provide 30 million terminals by 1992, though industry estimates anticipate more on the order of 8–10 million by that time.[15] Such terminals could be adapted to offer teletext, videotex, and other related services.

Independent of the Electronic Directory, the French have put together an ambitious program in teletext and videotex. These two services are more closely connected in the French experience than they are in Britain. This is in part the result of a joint research effort sponsored by TDF, the national television network, and the PTT, which operates the French telephone service. The result is a teletext/videotex system that is fully compatible. The ANTIOPE teletext service has operated on a small scale since 1977 in Paris and Lyon. It offers a magazine format similar to the CEEFAX service. ANTIOPE has been marketed aggressively outside of France. CBS was an early supporter of the system, to the extent of petitioning the FCC to make ANTIOPE the American standard for teletext.[16] In October 1981 the French government introduced Inteltext, an enhanced teletext service that will offer both general and special-interest information in a U.S. market trial.[17]

TELETEL, the French videotex service, is currently undergoing its first major field trial in 2,500 households in Velizy, on the outskirts of Paris. The mix of IPs for the Velizy trial includes the expected concentration of businesses, from travel agencies to mail order firms and investment services. Though in keeping with the prominent role that the Catholic Church has played in French history, the Church is offering the first Pray by Videotex service.[18] Three hundred of these 2,500 households are being provided with "smart cards" or microchips on a card. These will enable families to pay for advertised products and services in the same way that "money-cards" are used in automated teller devices for electronic banking. The only difference is that in the Velizy test the card user will not have to leave home to complete the purchase. Experiments similar to this involve the application of videotex to the automated office, factory, and, in a few cases, to work at home or "teleworking."

The Electronic Directory and other videotex services that are consumer-purchase oriented give a definite direction to the French telematics program. The French are essentially involved in a massive effort to build a state-of-the-art infrastructure for the electronic mass consumption society. This is the basis of both home and business applications. From teleshopping to teleworking, the market connection is clear. Nevertheless, the entire program is currently under review by the Mitterand government. Initial responses indicate possible moderation in the pace of the program, but not in its direction.[19]

Canadian Telidon

The Canadian government's involvement in telecommunications is not as ambitious as the French program in telematics. Nevertheless, Canada has followed the French pattern with a substantial government commitment to the growth of a national videotex service that might compete successfully for lucrative foreign markets (spelled U-N-I-T-E-D S-T-A-T-E-S).

The Canadian Department of Communications developed an R&D program that began to produce a videotex product technically superior to Prestel in 1978. This resulted in Telidon, a service that may not be a full generation ahead of existing systems but represents an advance in data-base flexibility and graphic-display capacity. Telidon has enjoyed a substantial Canadian government financial commitment. In February 1981 the Department announced a two-year $27.5 million outlay for Telidon development. For a country with one tenth the population of the United States, this investment, on top of the $12.5 million that the Department has already committed to Telidon, represents a major national effort. The fundamental purpose behind this effort differs little from that of the British and French. According to Communications Minister Francis Fox, this spending "will be to ensure the existence of a commercially viable videotex industry in Canada with a capability to compete in export markets."[20] This governmental enthusiasm has led to some degree of misunderstanding in Canada about the meaning and potential of Telidon, a point that a recent Royal Commission report seeks to dispel:

> There is widespread misunderstanding of Telidon among the Canadian public, some of it fostered by the government, abetted by an uncritical press. Much of the official publicity has focused on its importance for the future of Canada's electronics industry. The impression has been created that Telidon resembles the CANDU nuclear reactor, in the sense that it is a machine or apparatus exclusively available in Canada. Telidon is not at all like this. . . . Because Telidon technology is public knowledge, adoption of Telidon by the United States or other countries would not give the Canadian electronics and videotex industries exclusive markets. At best, it would place them in a preferred position because of their know-how and lead in development and manufacturing.[21]

With or without the caveats, the ambitious nature of the Canadian effort to develop videotex markets is suggested in Table 3–4, a description of Telidon field trials. These trials cover most of Canada's provinces, as well as locations in the United States and Venezuela. They are sponsored by both private and governmental agencies, cover rural, town, and urban areas, and

TABLE 3–4. Telidon systems, current and planned.

Project Name	*Location and Start-up*	*Number of Terminals and Transmission Method*
TV ONTARIO	Throughout Ontario January 1980	55 Telidon Terminals Broadcast teletext via TV Ontario and Anik B satellite Videotex via telephone
PROJECT IDA	South Headingly, Manitoba June 1980	33 Telidon Terminals Videotex via coaxial cable
PROJECT VISTA	Toronto, Montreal, Quebec City May 1981	491 Telidon Terminals Videotex via telephone
PROJECT MERCURY	Saint John, N.B. April 1981	45 Telidon Terminals Videotex via telephone
VIDEOTEX PROJECT	Vancouver, B.C. Summer 1981	150 Telidon Terminals Videotex via telephone
PROJECT ELIE	Elie, Manitoba Fall 1981	150 Telidon Terminals Videotex via optical fiber
TELIDON II	Montreal, Quebec Fall 1981	250 Telidon Terminals Teletext and Videotex by cable, Telidon II data base accessible by keyword search
PROJECT GRASSROOTS	Southern Manitoba April 1981	25 Telidon Terminals Videotex via telephone
TASK FORCE ON SERVICE TO THE PUBLIC	Across Canada May 1981	20 Telidon Terminals (eventually 100) Videotex via telephone
CBC TELIDON	Toronto and Montreal 1981	TBA Broadcast teletext
CABLECOM	Regina and Saskatoon, Saskatchewan, 1981	TBA Videotex via telephone
AGT TELIDON	Calgary, Alberta July 1981	30 Telidon Terminals Videotex via telephone
MARITIME TEL AND TEL	Nova Scotia Early 1982	TBA
TELEGLOBE TELIDON	International Summer 1981	50 Telidon Terminals Videotex via telephone and data switch network
WETA/AMC TELETEXT	Washington, D.C. June 1981	60 Telidon Terminals Broadcast teletext via PBS station WETA
VENEZUELA PROJECT	Caracas, Venezuela April 1981	26 Telidon Terminals Videotex via telephone
TIMES-MIRROR	Los Angeles, CA Late 1981	200 Telidon Terminals Videotex via telephone and cable

TABLE 3–4. Continued.

Project Name	*Location and Start-up*	*Number of Terminals and Transmission Method*
TIME-LIFE	TBA Late 1981	TBA Multichannel teletext via satellite and cable

Source: Government of Canada, Department of Communications, *Telidon Reports*, July 1981, (6) pp. 5–7.

offer data bases in both official languages of Canada. Moreover, there is diverse distribution of terminals (homes, businesses, public places, and schools) and several different transmission modes including satellite, TV broadcast (over VBI), cable, paired wire, fiber optics, and ordinary telephone. A number of developments in 1981 gave Telidon the possibility of developing that preferred position in the international market. In February 1981, both Time, Inc. and the Times-Mirror Company announced the selection of Telidon for videotex projects. Time, Inc. is using Telidon to test the first national multiple channel teletext service in the United States. Times-Mirror a media conglomerate that includes the *Los Angeles Times* among its many holdings, is using Telidon for its L.A. videotex trials. Finally, in May, AT&T announced standards closely compatible with Telidon for proposed videotex services.

The Canadian program is unique in the extent of public involvement and social application in these field trials. The Department of Communications guarantees public and educational representation on its videotex bodies. The Department has funded more than the standard market-viability studies. It has supported among the few analyses of public access and social impacts.[22] Moreover, schools are more closely involved in Canadian field trials than in either Britain or France. TV Ontario, the provincial educational network, is particularly active in development of a provincewide education service. Furthermore, Canadian government agencies, notably Statistics Canada, are involved in expanding ways to ease public access to government data through the location of videotex terminals in such public places as post offices and shopping centers.

Several explanations for these unique sociopolitical features come to mind. One is that Telidon is at the field trial stage. The largest trial in Table 3–4 involves only 491 terminals. Recall that Prestel has over 13,000 terminals in full commercial use. Neither the Canadian government nor Canadian business have had to confront the "price to be paid for everything" reality

that Prestel participants make painfully explicit. Moreover, such public participation in the early stages of Canadian videotex is itself good business. Just as the "Golden Age of TV" was a successful industry strategy to sell sets, the promotional subsidies of the Canadian government may well reflect the sober business judgment of people aware of what it takes to create a market. But in addition to these concrete reasons, there is a fundamental characteristic of the Canadian experience that is mainfested particularly in the communications sphere. Canada has always been an information colony, first of the British and now the United States.[23] This colonial status has spread a spirit of nationalistic resistance through not only the Canadian working-class, where such resistance is not surprising, but to the Canadian bourgeoisie as well. This nationalistic desire to create some measure of cultural sovereignty in the face of wave after wave of U.S. media/telecommunications penetration helps us to understand why Canada is more open to some degree of public interest involvement in the development of videotex. The interest in cultural sovereignty is reinforced by the resistance of French Quebec to *both* U.S. hegemony and that of English-speaking Canada. In this climate of resistance, the federal government must rely on grass-roots mobilization to achieve market success with videotex. This is particularly important because with market success may come an instrument to further unify Canada's loose federation. Communications is thus particularly critical as a form of nationalistic resistance *and* as a means to achieve a greater degree of national cultural unity. Chapter Seven explores these unique social and political features in greater detail. For in the contradictions that help create these features lie the possibilities to make wider use of videotex than the current dominant market orientation allows.

The United States: Leaving it to the Market

AT&T SETS VIDEO STANDARDS

This *New York Times* heading for May 21, 1981 says a great deal about U.S. involvement in videotex development. On that day, AT&T specified the characteristics that it wants to see adopted for videotex systems. The announcement, made to a packed auditorium of anxious business people attending an international videotex conference, was followed by supportive statements by CBS and representatives from Canadian Telidon and French Antiope. CBS announced that it would adopt the AT&T standard for its Los Angeles videotex trials. A few months later, CBS and AT&T made public the details of a joint videotex project. The Canadian and French officials, pleased that the AT&T recommendation conformed most to their systems, announced their intention to make the modifications necessary to achieve

compatability with AT&T. The British were gloomy. Compatibility for them would mean costly changes in a commercial system already in the hands of thousands of people One could not help but wonder where the FCC was during these events. For here was a private corporation in effect setting a national, perhaps international, policy on the future development of a mass medium. The implications of this action could well be substantial. What would consumers have to pay for videotex sets and services that conform to the Bell standard? The company's standards, which allow for the superior graphic presentation of Canadian Telidon, are certainly more advanced than those of the British. But here, as elsewhere, more advanced means more expensive. People will have to pay more for sets, equipment, and services compatible with the AT&T system. So why opt for a more expensive set of standards? One reason is that corporate executives worry that the less sophisticated British alpha-mosaic system is inadequate to reproduce advertising graphics and corporate logos. The more advanced alpha-geometric system supported by AT&T is therefore better suited to advertising. For *this* people will have to pay more? But, counter the marketplace supporters, no one will be forced to buy a videotex set and its services. AT&T may well be supporting standards that the marketplace won't bear. But what marketplace? Higher prices may mean that some will have to do without videotex; but those who can afford to will not be among them. And as videotex becomes a more and more vital tool, to retrieve basic information, to communicate with others, perhaps to work, these people will have the information advantage.[24]

The FCC, at this time, does have ultimate authority to set U.S. videotex standards. Concerned people will have the opportunity to present their case to the Commission. But given the power of AT&T and the support it has received from others, notably CBS, who want to enter the videotex market, it is unlikely that the Commission can resist the Bell proposal. This is an example of the deeper meaning of deregulation. Chapter Two suggested that terms such as redistribution and recapitalization would be more appropriate. Concretely, it means that corporations whose primary interest is profit are relied on to set national policy on the production and distribution of information resources. This section explores further some of the implications of this policy by considering U.S. involvement in videotex development.

The U.S. has not been a driving force behind the development of videotex services. In part, this is the result of deregulation. Unlike France, Canada, or even Britain, where government involvement has ranged from providing some subsidies to overall management, U.S. government agencies have not been involved to any substantial extent in videotex development.

Consequently, there has been very little discussion of the public service potential in videotex.[25]

This lack of government involvement has left the power to set the pace for videotex development in the U.S. to private companies. Until recently, this pace has been slow. One reason is that U.S. companies have extensive investments in videotex competitors, including videodiscs, cable television, and personal computers. Nevertheless, as Table 3–5 indicates, the videotex field test market in the U.S. is growing. While these trials typically involve small numbers of participants, they include a wide range of distribution channels (phone, cable, broadcast), formatting procedures (32X16, 32X20, 40X20, 80X24), display (home television, computer terminal, videotex set), and input devices (numeric keypad, alphanumeric keyboard). Consequently, the most important impact of "deregulation" is no longer on the pace of development, but is on the kinds of services that corporate development is providing. The videotex marketplace now contains the biggest names in the broadly-defined information industries.

The growth of U.S. corporate involvement in videotex is due primarily to the recognition that videotex has substantial revenue potential. Banks are coming to see that, as one *Business Week* article put it, "transaction processing in financial services appears to be the trigger application that the public would be willing to pay for."[26] Consequently, Chemical Bank is spending several million dollars to conduct a videotex banking and information service with 200 families living in a wealthy New York City suburb. Based on market survey predictions, over 20% of U.S. retail sales in 1990 will be conducted by videotex. This has prompted large retailers such as J.C. Penney and Sears to test electronic catalogs. In addition to banks and retail outlets, a long list of major publishing companies are recognizing the virtue of diversity by entering the electronic market. Much has been made of worries that newspaper companies feel about AT&T plans for an electronic yellow pages modeled somewhat after the French national project. Newspaper publishers count on advertising for almost half their revenues. Visions of AT&T siphoning off these revenues with an instant source of information on that car or vacuum cleaner you want have been the subject of numerous articles.[27] However, for all their outward expression of fear, newspaper publishers have not shied away from the videotex business. Newspaper investment in videotex surpassed the $20 million mark by the end of 1981. In fact, one of the most ambitious videotex trials in the U.S. is the product of a marriage of two would-be competitors, AT&T and Knight-Ridder, one of the nation's largest newspaper chains. Newspaper companies still fear that AT&T will one day be the dominent producer and distributor of essential information (a prospect that prompted one newspaper lobbyist to offer this understatement:

TABLE 3–5 U.S. companies involved in videotex market tests.

Finance	*Publishing*	*Retailers*	*Others*
INFORMATION AND SERVICE PROVIDERS			
Banc One	Dun & Bradstreet	B. Dalton	American Airlines
Chemical Bank	Dow Jones	Comp-U-Card	AT&T
Citibank	Harte-Hanks	Federated	Associated Press
Merrill Lynch	McGraw-Hill	Department	New York Stock
United American	New York Times	Stores	Exchange
Bank	Readers Digest	Grand Union	
	Time	J.C. Penney	
	Times-Mirror	Sears, Roebuck	
SYSTEM OPERATORS			
AT&T	Dow Jones	Source	Viewdata (AT&T-
CompuServ	Online Computer	Telecomputing	Knight-Ridder)
CBS	Library Center	Time	Warner Amex Cable
Cox Cable	Sammons Cable	Times Mirror	Communications
Communications	Communications	Cable	
TRANSMITTERS			
Common Carriers	*Broadcasters*	*Cable Companies*	
AT&T	CBS	Cox Cable	
	NBC	Sammons Cable	
	Westinghouse	American Television & Communications	
		Times-Mirror Cable	
		Warner Amex Cable	
HOME TERMINAL MAKERS			
Apple Computer	Tandy	Western Electric	
Atari	Texas Instruments	Zenith Radio	
IBM			

Source: Business Week, June 29, 1981, p. 77.

"This is one instance where deregulation won't lead to increased competition.") But newspaper publishers aren't taking any chances. Some are in fact joining with cable companies or buying their own franchises to develop alternatives to the Bell distribution network.[28]

There is little in the way of a government alternative to this corporate-controlled videotex marketplace. The only direct government presence in interactive videotex is through an agricultural information experiment—Project Green Thumb. The Departments of Agriculture and Commerce sponsored this attempt to bring weather, market, and production information to farmers over their home television sets. But even this relatively

minor and decidedly market-oriented project worries some government officials. The NTIA administrator of videotex services referred to Green Thumb as an "information service illustrating the danger of federal encroachment on private sector prerogatives."[29] The only other government-sponsored project is a broadcast teletext trial involving four agencies including the Corporation for Public Broadcasting. CPB has been interested for some time in developing revenue-producing services for the meagre public broadcasting system in the U.S.[30] This experiment, under the direction of the New York University Alternative Media Center, makes use of WETA, the Washington, DC public television outlet to test such potential. More serious than the danger that NTIA suggests is the possibility that a shift in emphasis from unsponsored public broadcast services to a costly teletext service would price many people out of the market for the only substantial alternative to commercial electronic media.

Even less involved than government agencies are public interest and other groups comprising the dominated classes and strata. While such groups have considered the issues raised by the development of videotex services, and even proposed various public uses, some of which are discussed in Chapter Seven, these groups have led little involvement in actual field trials. The absence of such participation clearly distinguishes U.S. experience with videotex from that of all other videotex countries, particularly Canada.

In sum, U.S. companies are preparing to make videotex a major mass medium for both home and business. Since these companies are typically leaders in their other respective communications fields, countries that have gotten an earlier start on videotex can only hope that U.S. firms will adopt their advances and perhaps consider joint ventures. The U.S. is particularly important from the market end as well. With the largest mass market for electronics in the world, with the highest concentration of telephones, televisions, computers, and other telecommunications devices, the U.S. is vital to the sales plans of videotex businesses throughout the world. As the counsel to Antiope Videotex Systems Inc. put it, "The U.S. market is crucial to whatever technology becomes the worldwide information-exchange system."[31]

Videotex in Other Countries: National Policy or Free-For-All?

A number of other countries have experimented with videotex. Most of these apply systems that we have already discussed. The most advanced technically and the closest to mass marketing are the Japanese Captain ser-

vice, the West German Bildschirmtext, Viditel in the Netherlands, Telset in Finland, a Telidon system that provides government information in Caracas, Venezuela, and a Prestel variant in Switzerland.

Minor technical variations aside, the significant difference among nations now using or considering videotex is the extent of national debate and planning on videotex. Some countries, notably Sweden and Australia, have proceeded slowly with videotex, out of a concern that such a system be integrated into a national information system, that sufficient privacy protections be provided, and that they are put to the best social, as well as market, advantage. These countries are under enormous pressure from videotex promoters who hold the models of the U.S. and Britain. The latter have relied less on national debate than "market forces" to determine the place of videotex in society. Countries such as Finland and the Netherlands have succumbed to these pressures by developing systems in the hope that the presence of working systems will stimulate debate on a national information policy.[32] Chapter Six explores international ramifications in more detail. Suffice it to say that videotex is an important testing group for national policies on the production and distribution of information.

Footnotes

[1]Richard Hooper, "The UK Scene—Teletext and Videotex," *Videotex '81*, Middlesex, UK: Online Conferences Ltd., 1981, p. 132.

[2]On the struggle over broadcast television standards see Christopher H. Sterling and John M. Kitross, *Stay Tuned: A Concise History of American Broadcasting*, Belmont, CA: Wadsworth, 1978, pp. 293–304.

[3]For an optimistic view of these issues see Efrem Sigel (Ed.), *Videotex: The Coming Revolution in Home/Office Information Retrieval*, White Plains, NY: Knowledge Industry Publications, 1980.

[4]The Association also predicted that there would be 100,000 Prestel receivers in use by 1979. By October 1981, there were 13,000 such sets. See Roger Green, "Post Office Gives Viewdata a Wrong Number," *New Scientist*, October 30, 1980, pp. 300–303.

[5]Hooper, "The UK Scene . . . ," op. cit., p. 132.

[6]Brian Champness, "Social Uses of Videotex and Teletext in UK," *Videotex '81*, op cit., p. 333. For the full study see "Teletext and Prestel: User Reactions," London: CS&P, Ltd.

[7]Hooper, "The UK Scene . . . ," op. cit., p. 132.

[8]Max Wilkinson, "Viewdata: The Prestel System," in Sigel (Ed.), *Videotex*, op, cit., pp. 67–68.

[9]Hooper, "The UK Scene . . . ," op. cit., p. 133.

[10]Peter Head, "Prestel—From the Point of View of One Information Provider," *Videotex '81*, op. cit., pp. 138 and 140.

[11]Brian Champness, "Social Uses of Videotex and Teletext in UK," op. cit., p. 333.

[12]Simon Nora and Alain Minc, *The Computerization of Society: A Report to the President of France*, Cambridge, MA: MIT Press, 1980. The word is derived from the French terms *TELEcommunications* and *inforMATIQUE*. It is now used in English as *telematics*.

[13]*Ibid.*, p. 2.

[14]"From Telephones to Telematique," *Telecom France*, May 1981, p. 8.

[15]R. D. Bright, "The Telematique Program," *Videotex '81*, op. cit., p. 37; *Telecom France*, op, cit., p. 8.

[16]U.S., FCC, *Petition for Rulemaking In re Amendment of Part 73, Subpart E of the Rules Governing Television Broadcast Stations to Authorize Teletext*, July 29, 1980.

[17]Phil Hirsch, "France's Inteltext May Get U.S. Pilot Test in '82," *Computerworld*, October 12, 1981, p. 8.

[18]"French Telematique Takes Off," *Telecom France*, May 1981, p. 20.

[19]"Can 30m French Terminals Be Wrong?," *The Economist* August 22, 1981, p. 20.

[20]"Canadian Government Expands Telidon Program by $27.5 Million," *Canadian Embassy Press Release*, Washington, DC, February 6, 1981.

[21]*Royal Commission on Newspapers*, Hull Quebec: Canadian Government Publishing, 1981, p. 192.

For an excellent analysis of the impact of computer communications, including videotex on the newspaper industry, see *Royal Commission on Newspapers* (Vol. 8), "Newspapers and Computers: An Industry in Transition," Hull, Quebec: Canadian Government Publishing Center, 1981.

[22]P. G. Bowers, "The Educational Community and Videotex Applications," and J. L. Campbell & M. B. Gurstein, "Social Impact/Social Uses of Videotex in the Canadian Context," *Videotex '81*, op. cit., pp. 317–330; David Godfrey and Douglas Parkhill (Eds.), *Gutenberg Two*, (2nd revised ed.), Toronto: Porcépic Ltd., 1980; Shirley Serafini and Michael Andrieu, *The Information Revolution and its Implications for Canada*, Ottawa: Department of Communications, 1980.

[23]Dallas W. Smythe, *Dependency Road: Communications, Capitalism, Consciousness, and Canada*, Norwood, NJ: Ablex, 1981.

[24]The proposed videotex standard is reported in American Telephone and Telegraph Company, *Videotex Standard: Presentation Level Protocol*, May 1981.

[25]For a discussion of this issue see Institute for the Future, *Teletext and Viewdata in the U.S.: A Workshop on Emerging Issues*, Menlo Park, CA: Institute for the Future, 1979.

[26]*Business Week*, June 29, 1981, p. 74.

[27]According to Katherine Graham, publisher of *The Washington Post* and President of the American Newspaper Publishers Association, "The possibility of one giant corporation becoming the information supplier . . . to four out of five American households strikes many of us as profoundly troubling." *Boston Sunday Globe*, "The New Electronic Newsboy," August 31, 1980.

[28]For a discussion of newspaper company involvement in videotex and the fear that many newspaper people have for the transformation that videotex may bring about, see John W. Alhauser (Ed.), *Electronic Home News Delivery: Journalistic and Public Policy Implications*, Bloomington, IN: Indiana University, 1981.

[29]Karen Heald, "Federal Participation in Electronic Information Delivery." (Paper pre-

sented at the Conference on Culture and Communications, Temple University, April 10, 1981, p. 6.)

[30]See Sheila Mahony, et al., *Keeping PACE with the New Television: Public Television and Changing Technology*, New York: The Carnegie Corporation of New York, 1980.

[31]*Business Week*, November 17, 1980, p. 152.

[32]*Videotex '81*, op. cit., pp. 113–130 and 163–198 report on videotex developments in Japan, Latin America, and Europe, excluding France and Britain.

4

Home Sweet Marketplace

> We can give the advertiser demographics he never had before—how many people in the 20,000 to 30,000 dollar bracket are watching this commercial, that sort of thing . . .[1]
>
> Marketing Executive,
> Warner-Amex Qube

Chapter Three introduced videotex by describing the technologies that comprise it, by distinguishing among various types of systems that different arrangements of these technologies create, and by examining the major national interests expressed in videotex development. The next three chapters examine the place of videotex and information technologies in the home, the workplace, and the international arena. Videotex can shape social behavior, depending on the social uses to which it is put. But in turn, these uses will be shaped by existing social relations in the home, the workplace, and globally, among nations and classes. This is another way of saying that like any technology, videotex does not exist in a vacuum. It is only made real, realized, by social uses that shape it in specific social contexts. Hence, to understand the meaning of videotex, we need to comprehend both uses and context.

Chapter Two considered the dominant power structure that shapes

corporate uses of videotex for profit in a context of state support with relatively little regulation. To understand fully the significance of this power structure, we needed to contrast critical visions that conceptualize the power structure with the conservative pluralist perspective. Similar contrasts or critical challenges to long-dominant ways of viewing the social relations of communications help guide our understanding of the meaning of videotex in other spheres.

To comprehend the meaning of videotex in the home, Chapter Four suggests how an *audience commodity* view challenges the dominant *mass society* perspective. Chapter Five shows how our understanding of videotex in the workplace is deepened by examining the challenges that research on the capitalist *labor process* puts to the dominant conservative *post-industrial society* perspective. Finally, Chapter Six examines the global context for videotex by considering how a *world system* paradigm challenges a *modernization* or *developmentalist* view.

These challenging perspectives are based on the premise that capitalist social relations shape the uses to which videotex is put. Furthermore, these perspectives show how such technologies tend to reinforce existing class, and therefore power, relations. Consequently, they suggest that unless such technologies are made explicit instruments of class struggle, of opposition, and the creation of alternative social relations, they will be used primarily to advance the hegemony of those who control the technology.

Mass Society: The Mainstream

> . . . the growth of centralized organizations at the expense of intermediate groups contrains both elites and non-elites to engage in efforts to directly manipulate the other. Media of communication that command the attention of millions of people simultaneously are major instruments of this manipulation by those who command them, but also by the audience upon which their success or failure directly is dependent. Centralized decision making also may cut two ways: if the populace can make its voice felt more easily when it can influence directly one master decision, rather than having to influence many smaller decisions to achieve the same result, then by the same token elites also may grasp one major lever of power more readily than many smaller ones. Centralization of decision-making functions does not preclude direct intervention either by the mass or the elite, although it certainly does prevent people from expressing and implementing individual views on public matters. When centralized national relations are combined with weak intermediate relations and isolated family relations, elites are unprotected from mass pressures and masses are unprotected from elite pressures.[2]

Mass society occupies the mainstream of social science theory on the social relations of the home or private sphere. Indeed, the concept of mass society entered the lexicon with *sociology*, each introduced by Auguste Comte, whose statue at the Sorbonne proclaims him "Père de la Sociologie." Comte's vision of industrial society was a divided one: Will this be an industrial age of plenty guided by the priest-surgeon Sociologist or the age of division, of isolated individuals wandering in aimlessness?[3]

This split view would structure the debate about mass society for two centuries. The latter, the pessimistic view of man in mass society, of the lonely crowd, would lead the debate and indeed shape the course of theorizing in sociology and "mass" communications. Nowhere is this view expressed with more care and passion than in the work of Comte's intellectual heir Emile Durkheim. Durkheim's work contains a unity of focus that is not fully appreciated because it threads through a number of diverse substantive areas. He wrote of religion, the family, crime, education, suicide. But all of these topics are little more than expressions of, or vehicles for conveying, the message that industrial society is mass society; that mass society is a loose collection of anomic individuals—"liquid molecules" as he calls them—tied to one another by little more than the bond of mutual economic dependence. The most explicit presentation of this bleak vision of mass society is in *Suicide*, ironically Durkheim's most empirical work. Perhaps out of confidence in the statistical basis of his view that suicide has risen dramatically throughout Europe, Durkheim uses the final chapter to ruminate on the implications of this trend:

> Historical development . . . has swept cleanly away all the older social forms of organization.[4]

All that is left are individuals in competition for material goods—a competition that the means of communication make more profitable and thereby more morally impoverished:

> Competition is of course becoming keener every day, because the greater ease of communication sets a constantly increasing number of competitors at loggerheads. On the other hand, a more perfected division of labor and its accompanying more complex cooperation, by multiplying and infinitely varying the occupations by which men can make themselves useful to other men, multiplies the means of existence and places them within reach of a greater variety of persons. The most inferior aptitudes may find a place here. At the same time, the more intense production resulting from this subtler cooperation, by increasing humanity's total resources, assures each worker an ampler pay and so achieves a balance between the greater wear on vital strength and its recuperation. Indeed, it is certain that average comfort has increased

> on all levels of the social hierarchy, although perhaps not always in equal proportions. The maladjustment from which we suffer does not exist because the objective causes of suffering have increased in number or intensity; it bears witness not to greater economic poverty, but to an alarming poverty of morality.[5]

Durkheim sees in suicide the symptom of a wider social malaise—the rise of mass society. The decline of organized religion, the reduction of the family to "non-entity," and the rise of the modern state (whose growth, in Durkheim's mind, only masks its moral impotence) leave the individual without social resources. A pessimistic Durkheim concludes with an appeal to recreate community around occupation, though he gives this option little chance before the onslaught of modernity:

> When these sufferings are expressed by a theorist they may be considered exaggerated and unfaithfully interpreted. But in these statistics of suicide they speak for themselves . . . The only possible way, then, to check this current of collective sadness is by at least lessening the collective malady of which it is a sign and a result.[6]

Durkheim's view remains central to the understanding that scholars bring to the study of social relations in a mass media age.[7] It has been sharpened more by events than by intellectual accomplishment. The horrors of World War, economic depression, and the rise of fascism make what was once an unusual challenge to the Enlightenment—born vision of secular progress, a popular view of the human condition. The most explicit contemporary summary of this vision comes from a critique. In "America as a Mass Society," Daniel Bell captures the spirit of mass society and its link to media:

> The conception of the "mass society" can be summarized as follows: The revolutions in transport and communications have brought men into closer contact with each other and bound them in new ways; the division of labor has made them more interdependent; tremors in one part of society affect all others. Despite this greater interdependence, however, individuals have grown more estranged from one another. The old primary group ties of family and local community have been shattered; ancient parochial faiths are questioned; few unifying values have taken their place. Most important, the critical standards of an educated elite no longer shape opinion or taste.[8]

According to Bell, the result is a constant state of moral ambiguity and a narrowing of once organic social relationships. Moreover, the growth in social and spatial mobility increases insecurity over status. The individual

loses any clear sense of self and looks to new leaders, perhaps to charismatic figures, to supply the unity that mass society destroys.[9]

The works of specific twentieth century descendants of Durkheim make Bell's summary perhaps too tame. Karl Mannheim writes of the crushing burden of bureaucracy and the meaningless functional rationality that it inspires.[10] Ortega Y Gasset laments the decline of standards, social and aesthetic, that the "revolt of the masses" has engendered. The result of the diffusion of culture, particularly through the "sinister" mass media, is to dilute the quality of cultural production.[11] A bland mediocrity replaces human aspiration and achievement.

Bell's critique of this view wanders over contradictions in usage and ambiguities of terminology before arriving at the essence of his concern:

> It is at heart a defense of an aristocratic cultural tradition—a tradition that does carry with it an important but neglected conception of liberty—and a doubt that the large mass of mankind can ever become truly educated or acquire an appreciation of culture.[12]

For Bell, this overlooks the facts of life in the United States. In this respect his optimistic variant of the mass society theme places him in the tradition of de Tocqueville. The latter's *Democracy in America* celebrates the mass experience of America. The United States, at least in the mid-nineteenth century, is a thriving *pluralist* nation of joiners:

> Americans of all ages, all conditions, and all dispositions constantly form associations. They have not only commercial and manufacturing companies, in which they all take part, but associations of a thousand other kinds, religious, moral, serious, futile, general or restricted, enormous or diminutive. The Americans make associations to give entertainments, to found seminaries, to build inns, to construct churches, to diffuse books, to send missionaries to the antipodes; in this manner they found hospitals, prisons, and schools. If it is proposed to include some truth or to foster some feeling by the encouragement of a great example, they form a society. Whenever at the head of some new undertaking you see the government in France, or a man of rank in England, in the United States you will be sure to find an association.[13]

A century later, Bell sees little in this assessment that needs revision:

> It is asserted that the United States is an "atomized" society composed of lonely, isolated individuals. One forgets the truism, expressed sometimes as a jeer, that Americans are a nation of joiners. There are in the

> United States today at least 200,000 voluntary organizations, associations, clubs, societies, lodges, and fraternities, with an aggregate (but obviously overlapping) membership of close to 80 million men and women. In no other country in the world, probably, is there such a high degree of voluntary communal activity, expressed sometimes in absurd rituals, yet often providing real satisfaction for real needs.[14]

In Bell's view then the connection between industrialization and an atomized mass society is broken. America has, in fact, realized the hope of Durkheim for a genuine occupational community. Referring to America's "ingenuity in shaping new social forms" Bell cites "trade unions whose leaders rise from the ranks—there are 50,000 trade-union locals in this country that form little worlds of their own."[15] Far from a society of mindless masses, America has realized a genuine *pluralist* mass culture. It is left for Foster Rhea Dulles, whose family produced famous heads of the State Department and CIA, to make the obvious link between this view and a pluralist conception of politics. In his history of popular recreation in America, Dulles celebrates the growth of sport in depression America:

> . . . 3,700 recreational buildings, 881 new parks, 1,500 athletic fields, 440 swimming pools, 3,500 tennis courts, 123 golf courses, and 28 miles of ski trails. Twelve hundred cities has in all 17,000 acres of parks reserved for sports activities, and they were annually spending $60,000,000 on their upkeep. Bathing beaches and swimming pools, with an estimated annual attendance of some 200,000,000, were the most popular of their facilities, but there were also 8,800 softball diamonds and 3,600 baseball diamonds at which the player attendance was estimated at 31,000,000; 11,000 tennis courts with an attendance of 11,000,000; and public golf courses used by a total of 8,000,000.
>
> Here was the truly democratic approach to this phase of recreation. These millions of urban workers—men, women, and children—were finally enjoying the organized sports that had been introduced by the fashionable world half a century and more earlier. Democracy was making good its right to play the games formerly limited to the small class that had the wealth and leisure to escape the city.[16]

These two variations on the mass society perspective have shaped the paradigms, scenarios, theories, and visions that people have used to understand the social meaning of information technologies, now videotex. The two are expressed in the scenes that opened this book. The pessimistic version is the nightmare world of *1984*, which John Tydemann aptly refers to as the "electronic hermit" alternative:

> Electronic transactions, communications, and information services decrease social and community interaction. . . . A key concern is the psychological and behavioral effects in the level of voluntary and in some cases forced isolationism.[17]

The optimistic vision is the Coral Gables family brought together in a personal network and linked to community, national, and international networks in what Toffler calls "the aggregate family" through the videotex intermediary.[18] Like the pluralist view of politics which presents the image of power widely distributed among many interests, optimists see in mass society a pluralist marketplace of diverse participants. But also like the pluralist view of politics, the optimistic vision of mass society is now under question by its once staunchest supporters.

As Chapter Two described, pluralist political analysts, once enthusiastic supporters of mass participation, now lament the inability to act, the stalemate that comes from too many pressures, too much pluralism. How, they ask, can a nation like the United States establish, not to mention *execute*, an energy policy, when a dozen or more interest groups wield veto power? In the same way that Huntington shifts from founding father of pluralist political science to prophet of the doom inherent in the "excesses of democracy," Daniel Bell shifts from singing the praises of mass culture to worrying as America descends "from the protestant ethic to the psychedelic bazaar."[19] The *End of Ideology* gives way to *The Cultural Contradictions of Capitalism*, to "pop hedonism," to the "death of the bourgeois world-view," to the modern hubris:

> . . . the refusal to accept limits, the insistence on continually reaching out; and the modern world proposes a destiny that is always *beyond:* beyond morality, beyond tragedy, beyond culture.[20]

For Bell, the ramifications of this cultural shift are profound. A promiscuous culture clashes with the rational economic machine that is the essence of a capitalist social structure. According to him, we experience

> . . . the radical disjunction between the social structure (the techno-economic order) and the culture. The former is ruled by an economic principle defined in terms of efficiency and functional rationality, the organization of production through the ordering of things, including men as things. The latter is prodigal, promiscuous, dominated by an anti-rational, anti-intellectual temper in which the self is taken as the touchstone of cultural judgments, and the effect on the self is the measure of the aesthetic worth of experience. The character structure inherited from the nineteenth century, with its emphasis on self-

> discipline, delayed gratification, and restraint, is still relevant to the demands of the techno-economic structure; but it clashes sharply with the culture, where such bourgeois values have been completely rejected—in part, paradoxically, because of the workings of the capitalist economic system itself.[21]

Unfortunately, the latter point, the contradiction (as opposed to disjunction) in capitalism that fosters its own demise, is not explored. The culture is culprit. To a polity overwhelmed with the press of single issue politics, we add a culture whose limitless manifestations ("even madness . . . is now conceived to be a superior form of truth"[22]) makes a mockery of traditional means to legitimate the system. This is indeed the central problem:

> whether the system itself can manage the huge overload of issues. This depends, in part, on "technical" economic answers and equally on the stability of the world system. But the deeper and more difficult questions are the legitimations of the society as expressed in the motivations of individuals and the moral purposes of the nation. And it is here that the cultural contradictions—the discordances of character structure and the disjunction of realms—become central.[23]

The videotex equivalent of this concern over cultural excess is the fear of "information overload."[24] This concept refers to the fear that the proliferation of communications channels will so innundate people with data that the crucial process of organizing information, of finding meaning, actually using the data, will prove to be impossible. Furthermore, just as "too much pluralism" is an easy justification for sealing off an elite decision-making process, "information overload" smooths the way to restrictions on access to information in the name of streamlining bureaucracy and managing complexity. The Paperwork Reduction Act of 1980 permits the U.S. government to store data in computers rather than on paper, and otherwise restricts access to government documents. Long fought-for freedom of information statutes are laden with restrictions that provide intelligence agencies with giant loopholes to avoid disclosures. The Federal Trade Commission advocates eliminating the requirement that advertisers justify their claims because consumers have sufficient information, and such justification costs money.[25] Reference to "information overload" justifies market constraints that impose exorbitant prices on information. So what that it costs $1,285.00 for a 196-page report on *Home Telecommunications in the 1980s?* Don't we have enough information? Could we possibly need more? (Table 4–1)

TABLE 4–1 Prices of reports on telecommunications

Home Telecommunications in the 1980s			
April 1980	196 pages	#150	$1,285.00
Communicating Word Processors			
April 1979	202 pages	#133	$1,285.00
Chinese and Russian Communications Markets			
December 1980	285 pages	#162	$ 985.00
Elecronic Yellow Pages			
December 1980	178 pages	#161	$ 985.00
Consumer Time-Sharing Services			
August 1980	148 pages	#155	$ 985.00
Electronic Mail in the 1980's			
December 1979	233 pages	#140	$ 895.00
Data and Voice Encryption Markets			
March 1979	102 pages	#130	$ 895.00
Consumer Telephone Interconnect Equipment			
December 1977	186 pages	#117	$ 795.00
Citizens Band Radio & the Future Portable Telephone			
September 1977	210 pages	#115	$ 795.00
Telecommunications Market Opportunities in the U.S.			
April 1978	298 pages	#119	$ 795.00

Source: International Resource Development, Inc., Norwalk, CT.

The solution is clear: to preserve capitalism, curb the excesses of democracy, curtail the madness of the cultural sphere, and restrict the overflow of information.

Radical Critique: Home as Factory

Where Bell sees contradiction, radical critics of the mass society view the intimate connection between a capitalist economy and its cultural/information sphere, between the mechanized workplace and the home. The critique begins at the level of functional interdependence: the private sphere supports the workplace by offering space for recuperation and the channeling of workplace anger, typically onto women. The critique deepens in recent work that questions the division between workplace and home. The home is more than a vent for repressed rage; it too is the site of production, though not of steel ingots or cardboard boxes, but of the *audience commodity*.

CULTURE AS RECUPERATION

In the traditional Marxist view, culture is a reflection of economic relations. Critics trivialize this nation: religion is an opiate; the superstructure a mirror image of its base. But even in the traditional Marxist view, more is meant than such vulgar attempts at trivialization would indicate. Culture is more than a reflection of economic relations. It is functionally interdependent with them. The cultural or private sphere provides an arena of support to fundamental economic activity. Samir Amin puts this sense of interdependence well in his analysis of the relationship between work and non-work time:

> Social time is split into non-working time and working time. But here too the former exists only to serve the latter. It is not leisure time, as it is called in the false consciousness of alienated man, but recuperation time. It is functional recuperation that is socially organized and not left up to the individual despite certain appearances.[26]

The primary function of leisure in capitalism is to restore body and spirit for a return to the workplace. It is in this sense that Stanley Aronowitz refers to leisure as "colonized." It is a captured sphere, one made even more vital as the work process, in office and home, is trivialized.[27] According to Aronowitz, the fantasy life of the private sphere is essential for one to make peace, or at least an uneasy truce, with the inevitability of alienated labor. Hence the growth of thousands of "car freaks" who invest the automobile with considerably more than status or power:

> It has become a vital means for the realization of the frustrated need to make a direct link with the totality of material production for youth who are condemned to either the fragmented labor of the factory or the office or the truncated learning of the school.[28]

Indeed, the "information society" is producing its own variety of the "car freak." These are the "video freaks," people who spend hours on television computer games, video cassette recorders, and now, videotex. Labor that is fragmented and degraded in the office assembly line, in front of the word processor, is invested with more meaning in the home, playing Space Invaders or perusing the electronic Sears catalog. Such meaning does not escape Pentagon promoters of the electronic battlefield. Video games are now used in U.S. Army training programs. In fact, the Pentagon has spent $2–3 million developing small, portable training devices that bear an unmistakable resemblance to arcade games. According to one designer of video games:

> I don't know why we're worried about parity with the Russians. We've got zillions of skinny, 11-year-old kids training furiously in the game parlors.[29]

This is how the Pentagon official responsible for military applications of video games describes his two-year-old program:

> The problems of training and performance problems in the Army are very real in a volunteer army. We've gone to great lengths to make this fun and we'll teach them about actual combat at the same time.
>
> We've piggybacked on the developments advanced by the entertainment industry, and on the large assembly lines that are turning out components cheaply. They're as much fun as the arcade games and they teach something that can really be applied.

The Navy's most successful recruiter in 1981 attributes much of her success to the time she spends in video game arcades. According to Julie Reed, she signed up 83 enlistees to lead all 3,500 recruiters in this way:

> After I offer to buy them a Coke and put a quarter in their machines, they talk to me. . . . Usually these are pretty smart kids. I just ask them if they know the Navy has sonar, radar and computer weapons that work just like the games. That interests them.[30]

But the private sphere provides more than fantasy space for the reproduction of labor power. As Heidi Hartmann and others have shown, the private sphere is the major site of women's oppression—the clearest expression of patriarchy. The home is the place for men to work not only on cars and video games, but on women. The personal degradation that men increasingly experience as a result of trivialized work is given some measure of compensation in the pattern of male control in the home. Men whose work capitalism renders unsatisfying are nevertheless given an outlet in the link between capitalism and patriarchy: the opportunity to control the labor power of women generally, and specifically in the home. According to Hartmann, the growing participation of women in the labor force does nothing to alter substantially this relationship:

> The "ideal" of the family wage—that a man can earn enough to support an entire family—may be giving way to a new ideal both both men and women contribute through wage earning to the cash income of the family. The wage *differential*, then, will become increasingly necessary in perpetuating patriarchy, the male control of women's labor power. The wage differential will aid in defining women's work as secondary to men's at the same time as it necessitates women's actual continued economic dependence on men.[31]

The private sphere in capitalism is then the arena of recuperation and reproduction. Workers recoup the physical and psychic strength to return to

work, in part through the reproduction of sexual hegemony—the dominance of men over women—changed in form, though largely undiminished in strength by the recent growth in women's participation in the labor force. Moreover, as Chapter Five indicates, the growth of information technologies has a deeper impact on women's labor than the work of men. Women are disproportionately the secretaries, bank tellers, and sales clerks whose labor is trivialized, when it is not abolished entirely by the use of microelectronics in capitalism.

THE AUDIENCE COMMODITY: INFORMATION PEDDLERS AND INFORMERCIALS

The recuperation thesis has been considerably deepened in the work of Dallas Smythe. To appreciate the significance of Smythe's contribution we need to see it as a paradigm shift, a fundamental change in our way of seeing the relationship between work and leisure. Like all changes in perspective, this new *way* of seeing affects *what* we see. Where once there was division, two spheres—work and leisure/economy and culture, now there is one: the sphere of commodity production. The private sphere is the site for the production of audiences that broadcasting stations and other media entrepreneurs sell to advertisers. The primary commodity of the private sphere, particularly of the commercial communications industry that insinuates itself so integrally into this sphere, is the audience: "a non-durable producer's good which is bought and used in the marketing of the advertiser's product."[32]

According to Smythe, once one uncovers the blindspot that has masked the audience commodity, one uncovers the underlying symmetry of capitalism:

> The material reality under monopoly capitalism is that all non-sleeping time of most of the population is work time. This work time is devoted to the production of commodities-in-general (both where people get paid for their work and as members of audiences) and in the production and reproduction of labor power (the pay for which is subsumed in their income). Of the off-the-job work time, the largest single block is time of the audiences which is sold to advertisers. It is not sold by workers but by the mass media of communications . . . But although the mass media play the leading role on the production side of the consciousness industry the people in the audiences pay directly much more for the privilege of being in those audiences than do the mass media.[33]

Studies in the U.S. and Canada indicate that broadcast audiences have invested about 10 times what the broadcasters themselves have spent on the

system[34] A recent ad in *Broadcasting* magazine conveys the audience commodity message more graphically:

> During 3½ seasons on ABC-TV *Baretta* averaged a first place 20.5 rating and 32% share while delivering 56% more young women than his NBC competition and 22% more than his CBS competition.
>
> So if you're looking for a ladies' man (with extraordinary appeal among kids and teens)—you should be buying *Baretta!*

Smythe's analysis raises a number of issues and considerable controversy.[35] What then of media messages? According to Smythe, the messages of advertisers are the instruments that speed the circulation of audience commodities (the message is the medium?). Furthermore, the programs (news, entertainment, stories) are, following Liebling, a free lunch. They are tossed in at the Tavern of the Audience Commodity as an added enticement to serious drinkers. But for those of us who believe with Milton Friedman that capitalism offers no free lunch, might we not conceptualize the news and entertainment as the wage for working to produce the audience commodity? Furthermore, if the private sphere is not playtime in mass society, nor simply recuperation time, but rather *work*, the process of building the audience commodity, then what do we make of the eight-hour day? To what extent can we continue to refer to a reduced work week as one of the benefits of twentieth century industrial society or one of labor's great victories?

The emergence of videotex and other home information systems has deepened the consciousness of the audience commodity among traditional purveyors of information. Much attention has been directed to the threat that newspaper publishers feel the growth of electronic publishing poses for their business. Should AT&T, CBS, Getty Oil, or some combination of these and other conglomerates produce information services, constantly updated and available in hard copy, what will become of newspapers? More to the point, as AT&T experiments with its electronic Yellow Pages, newspaper publishers worry about the loss of vital advertising dollars. Why place an ad in the Washington Post when AT&T can deliver an audience more efficiently and effectively? Newspaper publishers have succeeded in pressuring AT&T to curtail test marketing its electronic Yellow Pages. In October 1981 the Senate passed communications legislation that appears to prevent AT&T from directly entering the electronic publishing business.

Nevertheless, while publisher protest has received considerable attention, the publishers themselves have begun to take advantage of new profit opportunities that such services make available. We have already discussed the AT&T-Knight-Ridder joint trial and those of other print publishers (Table 3–5). Just as important is the development of a philosophy to buttress

these plans. Publishers are making explicit what critical analysts have felt for some time: they are not in the business of selling newspapers, nor even in the information business, as some suggest. More than these, they are *audience influence peddlers*, companies that use a community reputation to sell readers to advertisers. As Philip Meyer, Director of News and Circulation Research for Knight-Ridder puts it:

> Newspapers, their readership already depleted by new technology as videotex arrives on the scene, have been reexamining their functions. At one level, they are in the information business, but at a more basic level their product is influence—the ability to help advertisers influence consumers. A newspaper's ties to its community are extremely important in maintaining this influence-transmitting capability. The success of videotex may depend on its ability to fascilitate (sic) a sense of community and provide an influential context for the information it carries.[36]

But for one minor diversion, this is a clear expression of the audience commodity idea. Meyer correctly discards the notion that newspapers are fundamentally in the business of producing news or information. However, his suggestion that, instead, publishers produce influence is off the mark slightly. The concrete product that publishers produce for advertisers is an audience. Influence (community identification with a prestige newspaper) is the guarantee that newspapers make to advertisers that they can make good on their promised delivery. Newspapers don't deliver influence to advertisers, they deliver audiences whose influence they have cultivated over the years. Influence, as Durkheim put it, is the important "non-contractual element of contract." The contract specifies audience delivery; influence cements the deal.

As Smythe and Ewen have described, the practice of delivering audiences is certainly not a new one. The audience commodity took root in capitalist societies in the nineteenth century. It represents a rationalization of the need for secure mass markets that the growth of mass production creates.[37] A series of economic recessions and depressions in the late nineteenth and early twentieth centuries made this need all the more pressing. The rise of commercial newspapers, radio, and television helped to meet this need by producing the audience foundation for the mass consumption society. The *Broadcasting* magazine ad that touts the ability of Baretta to deliver 56% more women ages 19–49 than his NBC competition is a refinement of the audience-production process. Videotex takes this refinement one step further. As the executive for Qube noted in the quote that opened this chapter, videotex can offer advertisers very precise demographic information on viewer choices. In order to assure such demographics,

one analyst calls for rewarding attentive viewers. This can be done by crediting the consumer's account for requesting the advertiser's data base and conditioning such a credit on a number of correct responses to questions about the ads. To receive credit for requesting a refrigerator ad, for example, the consumer would have to answer correctly two multiple choice questions that are designed to test and, more importantly, reinforce, the consumer's product awareness.[38]

The power of videotex to isolate and monitor small groups, indeed, individual subscribers, refines the audience production process. It opens the potential to combine mass-appeal broadcast-like channels with specialized narrow-casting to deliver audiences of all sorts. Videotex thereby becomes an advanced version of General Motors, in that it combines mass audience production (the basic Chevrolet) with product-line distinctions along specific demographic characteristics (Olds, Buick, Cadillac). The link between producing cars and audiences is not pleasant to make and, as we shall see below, not fully accurate. Nevertheless, it captures the stark reality and unique potential of videotex for producing that peculiar object of the advertiser's delight—the audience commodity.

Videotex makes possible far more than refined monitoring for audience production. Videotex deepens the production process by opening the way to audience participation in the act of commercialization. Qube even has a name for it, a name that masks the power of the process as much as the process itself does—the *informercial*. "Columbus Alive," a Qube interview program, is actually one long, disguised commercial. On one day, a national book chain used an entire program to sell its wares. First, the local "guest," actually a manager of Readmor Bookstores, conducts a quiz on Columbus, Ohio reading habits. Following an analysis of the results (41% said they bought more than ten paperbacks a month), the Readmor representative offers a set of books for sale. Viewers can purchase the books, and have them charged and delivered by pushing a few buttons on their keypads. According to Wicklein:

> An interesting thing about this "book interview" was that it was actually a commercial, paid for by Readmor Bookstores. At no time was it identified as such to the audience. When I asked one of the show's producers why it was not, she said it was because they wanted the show "to flow into informal commercials so it won't interrupt the rest of the content."[39]

Informercials are also used to test the market for new products. Qube has been used to help *US* magazine choose its cover stores, a regional fast-food chain to select new menus and price products, and a department store to test preferences for different product lines. Everything from microwave ovens to

political candidates are now paraded before the viewers of what is called Test City, U.S.A. As a result, the division between program and commercial, never a rigid one, is now completely obliterated. The broadcast program, once Free Lunch or commercial wage, now blends with the commercial into a complete marketing device. The audience produces itself through the show, thereby making more transparent than ever the supposed division in capitalism between work and play, production and consumption.

To complete the commercial process, to make Home Sweet Marketplace a fully-accurate description requires a money transaction. Videotex completes the exchange that informercials begin by making available electronic purchases or Electronic Funds Transfer (EFT), as it is popularly known. A Prestel information provider allows viewers to order wine and other liquor directly through the system. Qube and other interaction systems have provided limited EFT services by permitting people to purchase products advertised on a frame by keying-in a credit card number or, more directly, by automatically deducting funds from a bank account. This helps to explain the keen interest of financial companies in the development of videotex. It helps to explain why American Express decided to buy a 50% interest in Warner Cable, thus making Warner-Amex one of the world's largest communications conglomerates (Table 4–2). Here is how a recent Warner Annual Report glows about the future living room shopping mall:

> The consumer tells his computer that he wants to purchase a power saw, for example. His computer accesses the Qube computer, and an electronically transmitted list of available power saws, together with specifications and prices, appears on the subscriber's TV screen. He then instructs the distant computer to bill the saw he has chosen to his American Express card. The American Express computer then notifies his bank's computer, which has been programmed to debit the subscriber's account to pay for his credit card purchases. Shortly thereafter, the saw arrives by mail.[40]

Videotex represents the next step in financial automation that the advent of credit cards and automatic teller machines located in shopping centers accelerated. Videotex can bring both shopping centers and banks into the living room, thereby cutting labor costs, or, from another vantage point, uniting the production of labor and audience in one site, the home.

One videotex observer reflects on another substantial, though not as clearly noticeable, cost that individuals have to bear beyond the price of the service:

> I think we should get used to the idea that everybody will know everything about us.[41]

TABLE 4–2 The Warner Communications Empire.

In addition to Warner Cable, these are major constituents of the tightly-knit Warner conglomerate:

Warner Bros. Pictures: international film production and distribution

Warner Bros. Television: television program production and distribution

Warner Bros. Recorded Music and Music Publishing: includes Atlantic, Elektra/Assylum/Nonesuch and Warner/Reprise records and tapes, and music publishing houses

WEA, Inc: distributor and billing agency for all Warner records and tapes

Licensing Corporation of America: representative for owners of trademarks used in production and promotion of products, the holder of rights to Warner Bros. cartoon characters, MGM film characters, and the representative of all teams in Major League Baseball, the Players Association of the National Football League and the National Hockey League

Warner Books: publisher of paper and hardbound books

Independent News: largest magazine and mass market book distributor in the U.S., including *Playboy*, the *National Enquirer*, *National Lampoon*, *Family Circle*, all Warner publications, the New York Times publishing group and all Ballantine books

National Periodicals: publisher of movie and fan magazines, DC comics, EC comics, and *Mad* magazine

Panavision: manufacturer of motion picture cameras and optical equipment

Atari: video games and home computers

New York Cosmos: professional soccer team

Warner/Lauren Cosmetics: perfume manufacturer and marketer

David Wolper Productions: producer of documentaries and docudramas (e.g., *Roots*)

WCI Home Video: production and distribution of videocassette and videodisc software

Satellite Entertainment Corp.: leases satellite transponders for The Movie Channel and the children's network Nickelodeon

Knickerbocker Toy Company: owns manufacturing rights to Raggedy Ann dolls, *Sesame Street*, Walt Disney, MGM, and Warner Bros. character dolls

Source: Robert Gustavson, Warner's Communications Empire—It Just Can't Lose, *Access*, (120), May 4, 1981, pp. 2–3.

This thought is shared by many who consider the privacy implications of videotex and information technologies. In fact, videotex proponents single out this ability to record every user action as a special virtue of videotex.[42] For this makes videotex a supremely rational all-purpose servant, providing

and charging for only the material a user requests. A Federal Trade Commission report emphasizes the significance of this from the seller's point of view:

> From a marketing standpoint, this could be a critical capability, since it will allow marketers and advertisers to target their audiences at a high level of precision and efficiency. These same two-way media could allow marketers to change descriptions of their product offerings as well as prices almost instantaneously in response to consumer reactions.[43]

But essential to this rational process is the need to record and store information on the viewing habits, purchasing decisions, opinions, communications, and other user activities. Embedded in this rational action is what sociologist C. Wright Mills called "the higher irrationality."[44] In order to achieve a more rational and profitable marketplace, the once private sphere of leisure is turned into precisely the opposite—a place laid bare to the inspection of those who control the system. According to the FTC:

> But the monitoring and control capability also raises substantial and difficult issues of individual privacy. And it places potentially enormous marketing power in the hands of vendors with access to personal or disaggregated information on viewing and purchasing patterns. As a result, will marketers and advertisers be able to manipulate consumers more effectively knowing what their previous purchases have been?
>
> Thus many of the new media, especially those that allow direct sales raise troubling privacy issues. While some consumers may be willing to sacrifice privacy for the convenience of direct "electronic" ordering, the idea of a central data bank compiling viewing habits, purchasing behavior, and answers to opinion polls for every participating household raises the spector of Big Brother.[45]

But the change does not result from some blunt political conspiracy of Orwellian dimensions. It does not emanate from what Orwell's villain O'Brien calls a desire to rub his heel into the face of mankind. Rather, more prosaically, it is the slow, seemingly logical, result of the drive for profit. Qube provides a service for subscribers by allowing them to purchase products from their homes. But Qube does not tell people that a central computer will store and perhaps retrieve their purchase information. For isn't it logical that Qube would *have* to do this in order to complete any transaction? Qube does inform people that it will store and retrieve subscriber information (names and addresses) when these subscribers participate in electronic polling and public affairs programs. But how long will it be before it becomes logical to expect people to assume such storage and retrieval? When will it no longer

be necessary to inform people at all about monitoring videotex transactions? It took less than six decades for the U.S. to move from massive vocal opposition to broadcast advertising to the informercial.[46] In the name of marketplace rationality, we get the transformation of the private sphere. All is made public. Or is it?

FROM PUBLIC TO PRIVATE TO AUDIENCE SPHERE

A commonplace among analysts of social life, whether traditional or radical, is to divide it into private and public dimensions. The former is the world of family, home, leisure; the latter of community, nation, and politics. A problem with this dichotomous thinking is that it implies that the decline of one sphere means the growth of the other. Thus, the invasion of the home by commercial communications means that all is made public. Friendship and intimacy are debased by the loss of privacy to the public realm. But for the last few decades, critical theorists have been suggesting the reverse, the demise of the public realm. Jurgen Habermas, perhaps the best known theoretician of the public sphere, sees in its decline the central evidence of crisis in contemporary capitalism:

> The political public sphere of the social welfare state is characterized by a peculiar weakening of its critical functions. At one time the process of making proceedings public (publizität) was intended to subject persons or affairs to public reason, and to make political decisions subject to appeal before the court of public opinion. But often enough today the process of making public simply serves the arcane policies of special interests; in the form of "publicity" it wins public prestige for people of affairs, thus making them worthy of acclamation in a climate of nonpublic opinion.[47]

This emphasis on individual famous *people*, as opposed to a public, and on what Young calls *mass* rather than public opinion forms the thematic core for two descendants of Habermas.[48] Richard Sennett's *The Fall of Public Man* unmasks the contemporary public personality, the product of the Star System, as a thin vestige of a vibrant community life:

> It may appear that the perception of a public figure in terms of personality is a new kind of bridge between stage and street; indeed, the impact of television on politics is usually discussed in terms of the politician having to behave as though he were an actor. This cliche is true in one way but profoundly misleading in another.
>
> What is believable about the politician as a personality are his motives, his sentiments, his "integrity." All these are at the expense of concern

> about what he does with his power. The content of politics is thus narrowed by the perception of personality in it.[49]

For Pierre Bordieu, the task is to demystify the product of the pollster—the celebrated voice of public opinion:

> In brief, in saying that public opinion does not exist, I mean it does not exist in the form which some people, whose existence depends on this illusion, would have us believe. At present, there is, on the one hand, mobilized opinion, formulated interests; and on the other, certain inclinations, opinions in an implicit state which, by definition are not really opinions, if by opinion we mean a formulated discourse with a pretension to coherence.[50]

No doubt these critical theorists would see in the instant polling techniques of Qube, Prestel, and other quasi- or complete videotex systems an intensification of the public sphere's demise. For such systems strengthen the illusion of public opinion by giving individuals the feeling of participation. In fact, electronic polling permits the individual to respond *yes/no/no opinion* to previously formulated questions. For example, citizens in Upper Arlington, an upper-class suburb in Qube's franchise area, were asked to respond to a draft plan to rebuild an older part of Columbus. Two thousand subscribers pushed their Qube buttons to participate. Qube supporters compare this number of respondents to the 125 that would typically show up for public meetings, and conclude that the system represents an advice in public democracy.[51] But the advance in the *number* of participants is at the expense of the *quality* of participation. The 125 people doubtless had more opportunity to formulate and shape the issues under debate than did the 2,000 who could only respond to structured questions. Nevertheless, 125 people at a civic meeting is no guarantee against the possibility of backroom deals. These can be as much window dressing as 2,000 people with electronic voting devices. Electronic polling probably increases the opportunity for manipulation because it creates the illusion of mass decision making. But that may make it easier to eliminate other forms of community involvement. Of course, if we replace keypads with keyboards, thereby increasing the response capacity from yes/no to statements that detail the depth of thought and feeling on issues, we lessen the manipulative potential. Chapter Seven considers this *potential* in videotex. Suffice it to say that the services that are *actually* offered to mass audiences do not take advantage of this potential. Rather, they concentrate on narrow responses to political choices that do in fact give the feeling of democratic participation in government without advancing public involvement in the shaping of issues, the formulation of

policy.[52] Following critical theorists, public issues are reduced to publicity, politicians to stars, and public opinion to private illusion.

The threat to privacy, that all is made public, here becomes the threat to public life, that public decisions are reduced to private choices made in physical isolation from other participants. The dichotomous approach to the public/private distinction creates confusion in understanding the meaning of each, and their relationship. Are we dealing with existing or idealized versions of public and private spheres? Furthermore, is it axiomatic that growth in one sphere threatens the other? Is it possible, as most imply, that a process of *mutual contamination* can make for a shrinkage in both? If so, what are we left with?

Drawing on the work of Smythe, consider the usefulness of introducing the concept *audience sphere*—the area of human activity that capital has shaped into a marketable commodity. This would reserve for the *public sphere* the social activity in which people come together to offer information, opinion, and criticism on issues that concern neighborhood, community, region, or the entire society. The private sphere is that region of human activity concerned with personal intimacy, with friendship and family, with personal love and hate. Historically, capitalism results in the penetration of public and private spheres by the process of building the audience commodity. The central *public* debates in capitalism are media events in which candidates for public office and elected officials are judged on their ability to deliver, not on a policy promise, but an audience to advertisers. The most intimate of human activities—sexuality, friendship, and animosity—are equally devised for making *private* life the audience commodity.

To suggest that the audience sphere invades both public and private domains preserves the meaning of the terms and avoids confusing implications about the relationship between public and private spheres. The "fall of public man" results not from the intrusion of personality into politics, but from the intrusion of the audience commodity. It is not intimacy that overwhelms the public sphere, but a false intimacy that builds the audience commodity. Likewise, it is not the intrusion of the public sphere that destroys intimacy, but a false sense of community that creates neither public spirit nor private life, but the audience commodity.

THE AUDIENCE SPHERE AND POPULAR STRUGGLE

In its effort to counter the dominant mass society view, the radical critique has generally emphasized the idea of *hegemony*. Culture is not the expression of timeless values debased by mass diffusion, as the pessimistic mass society view holds. Nor is it enriched by a plurality of contributors, as the optimists see it. Rather, it is the embodiment of domination, the subtle insinuation of class rule into daily existence. This results in the widespread

view that audience production and cultural reproduction are *common sense*. As Raymond Williams points out, hegemony, following Gramsci, transcends the bounds of base and superstructure. It is more than mere opinion or mental manipulation:

> It is a whole body of practices and expectations; our assignments of energy, our ordinary understanding of the nature of man and of his world. It is a set of meanings and values which as they are experienced as practices appear as reciprocally confirming. It thus constitutes a sense of reality for most people in the society, a sense of absolute because experienced reality beyond which it is difficult for most members of the society to move, in most areas of their lives.[53]

Hegemony is the unquestioned social value, nationalism in the return of hostage Americans from Iran. It is the unquestioned practice, the commercial break 12 minutes into a television program, the frame charge in the upper right-hand corner of every videotex page. In fact, once discovered, hegemony is so powerful a notion that we tend to lose sight that it is merely one part of a process that requires *incorporation*. Schools, the family, and the media are all engaged in a process of incorporating people into a dominant or hegemonic culture. They teach not merely an ideology that sits atop the heads of people, easily imposed but as easily sloughed off. They teach us how to live, a code that selects from all possible ways of living those which conform to the needs and pressures of producing and reproducing capitalist social relations. But this requires incorporating from existing patterns of social life; it requires bending, shaping, and often crushing ways of living that differ from the needs of an audience commodity system. According to Aronowitz, this introduces an inherent tension into the workings of hegemony:

> What this means is that while a ruling class can appropriate existing cultural forms and symbols and to a certain extent convert them into means of legitimizing its hegemony, it cannot *create* culture any more than it can create means of production. It thus depends in the last analysis on the exercise of creativity by others as they attempt to adapt their everyday lives under the impact of socioeconomic changes.[54]

What Aronowitz describes is the dialectical tension between a hegemonic system of social relations that reproduces itself by incorporating new generations and new groups of people. In the process of incorporation, there is tension, contradiction, and struggle.[55] To understand fully the audience sphere, we need to consider the resistance that these last three dimensions suggest.

What are the forms of resistance? At a basic level, one that critical thinkers tend to underestimate, there is popular resistance based on the simple disruption of habitual patterns of life that new forms of hegemonic control create. Such disruptions are taken more and more seriously by those seeking to market these potential forms of profit and control. They are typically the subject of so-called "human factors" research. Such research aims to understand, and thereby overcome, human resistance to innovation. This research contains important implications for understanding sources of resistance to the introduction of videotex.[56]

A basic assumption that guides much thinking on the social relations of communications technologies is that people are drawn to these technologies because they want information. Whether it be reading newspapers, listening to radio, or watching television, the relationship to the device is instrumental to the acquisition of information. Information technologies, such as videotex, which are built on the information-seeking premise tend to miss the wider frame of habit or ritual in which information seeking is embedded. These are the layers of behavior, of patterns that give form to specific daily activity. An example of a communications ritual is the common practice of reading the daily newspaper over breakfast. My perusal of the *Washington Post* over cereal and coffee can be viewed as an information-seeking activity. It *is* this, but more. It is a patterned activity that no only *informs* but also *gives form* to the start of the day. It makes few demands—the newspaper is eminently portable. It permits me to ease into my contact with the world, beginning with the comics and the sports page. This example can be multiplied many times over: the newspaper on the subway, the radio turned on during housecleaning, dishwashing or bathing, the television program that adds color and sound to a room during a conversation or while reading a book. The point is that to view these activities solely as information-seeking is to lose touch with the significance of ritual in social life. The need to be informed is matched, if not surpassed, by the need to give form to the fundamental round of activities that fill our days. Taking account of habit, routine, and ritual illuminates our understanding of constraints on the development of videotex.

One obvious constraint is portability. I can take a newspaper or radio to the dining room table or the bathroom, generally have it with me throughout the day. Is there an equivalent potential in videotex to going out to get the paper or turning on the radio while in the shower? Videotex systems that are built solely on their potential to deliver data to an information seeker may find limited use because people do not structure their time to set aside a period of the day when they devote their entire attention to information seeking. Following from this line of thinking is the problem of indexing. Videotex devices, literally built on the premise of an information-seeking public offer elaborate tree-structured decision procedures to deliver infor-

mation. If you want to know what is available at a local Chinese restaurant, you begin with a frame that lists entertainment possibilities in your area. You select from this a reference to restaurants, consult the restaurant page, move from general restaurants to Chinese, to a list of specific restaurants with regional specialities, and on to menu, price, etc. At each step, you are offered a page reference for further information. At each step you have to wait anywhere from 10 to 30 seconds, depending on the frame access time of the particular system. Experience with newspapers and telephones points to two substantial problems with this procedure. One, people's tolerance extends to about two to three levels of indexing; the dozen or so built into videotex systems invite frustration. Secondly, the more elaborate the decision structure, the greater the error potential. How many branches or errors does it take to lead someone to call a friend for information or simply get in the car and drive around to find a restaurant?

These are basic constraints emanating from habit, preference, and ritual that suggest constraints on the growth of videotex. With that said, we need to add that companies are now investing in packaging and procedures that will provide, in the corporate lingo, "user-friendly interface." Furthermore, television has achieved considerable success in overcoming social patterns that gave considerable form to family and personal life. Consider family conversations over dinner, or going to community parties and neighborhood meetings. Nevertheless, it is useful for those who oppose the expansion of the audience sphere to understand the major social limitations on the introduction of videotex. For one, it contributes to demystifying the technology: this is not something that can work its will automatically on the human subject. Moreover, such an understanding offers insights into what the audience builders themselves are considering in their plans for videotex.

Resistance to the hegemonic uses of communications technologies such as videotex extends beyond these basic human constraints. To understand this, consider again the idea of the audience commodity. Smythe suggests that we view participation in capitalist culture (hours before the television set) as *labor*—the work it takes to deliver audiences to advertisers. We suggested broadening this idea by introducing the term "audience sphere" to encompass the results of the attack on both private and public realms. Consider one implication of Smythe's revision in our thinking: Can we continue to refer to a reduced work week as one of the benefits of industrial society when workers spend so much of their time outside of factory or office, even outside the general definition of houseworker *laboring* under the pressures imposed by the demand management system of monopoly capitalism? But looked at from another angle, the audience sphere is also like the assembly line, an arena of opposition. Not only are there social constraints on imposing the logic of the machine on human subjects, there is also the explicit opposition of people who refuse to give up easily what is best de-

scribed as their surplus cultural value. The audience sphere is thereby also the realm of resistance to channelling energies that might satisfy real needs for an active, cooperative, critical culture into profitable institutions that reflect the disjointed passivity so useful for reproducing capitalist social relations.

Taking explicit account of opposition to the audience sphere taps a historical record of popular use of cultural energy to resist the consciousness industry and essentially call a strike against the dominant culture and its technological weapons. Examples include widespread resistance to the incursions of commercialism first into newspapers and magazines and then into broadcast media.[57] In addition to this are the efforts of people to root out the sexism, racism, and class bias of mass media.[58]

Borrowing from Williams, resistance to cultural hegemony tends to result in two types of groups: *alternative* and *oppositional*. Alternative groups grow out of the tension between dominant and non-dominant forms of cultural expression. They resist restrictions imposed by the dominant pattern of social relations, but do so within the framework of dispute settlement sanctioned in the dominant culture. A good example of an alternative group growing out of tension with the dominant culture is the public interest media reform movement in America. The National Citizens Committee for Broadcasting represents people who feel that the dominant system of commercial mass media is overly restrictive. It limits access to media to those wealthy enough to puchase air time and thereby prevents millions from using the dominant means of cultural expression in American society. As a result the NCCB protests and seeks access by using the court system and the regulatory arms of the U.S. government. It thus represents an alternative view, but one well within the framework of the existing system of social relations. An alternative group that reflects the growth in conservative fundamentalist attacks on dominant media is the Coalition for Better Broadcasting. This group opposes what it considers the threat to traditional values that televised sex and violence represents. While reflecting values in tension with, though well within the capitalist spectrum, this group is particularly interesting because it makes the media strike an explicit political weapon. That is, supporters refuse to watch programs or buy products from sponsors of programs they feel endanger traditional values.

On the other hand, tension sometimes builds into struggles that create not merely alternatives within the dominant social formation, but opposition groups that seek to alter fundamentally the formation itself. Media like the *Guardian* and community radio stations in the U.S., and socialist press and radio throughout Europe (notably in Italy, France, and Britain) reflect such opposition. They do more than seek to broaden the bounds of acceptable expression. They seek to overhaul the audience sphere that makes commercial success the criterion that defines acceptability.

Chapter Seven explores this and another dimension of opposition to hegemony: efforts to use new communications technologies to build alternatives to the dominant audience sphere. But before we consider this, let us turn from audience labor to the labor in factories and offices, to the role of information technologies such as videotex in the contemporary capitalist workplace.

Footnotes

[1]John Wicklein, *Electronic Nightmare: The New Communications and Freedom,* New York: Viking, 1981, p. 22.

[2]William Kornhauser, *The Politics of Mass Society,* Glencoe, Illinois: The Free Press, 1959, p. 100.

[3]Auguste Comte, *La Science Sociale,* Gallimard, 1972. For an excellent analysis of Comte's work and its place in the flow of sociological theory see Irving M. Zeitlin, *Ideology and the Development of Sociological Theory* (2nd ed), Englewood Cliffs, NJ: Prentice-Hall, 1981.

[4]Emile Durkheim, *Suicide: A Study in Sociology,* (translated by John A. Spaulding and George Simpson), New York: The Free Press, 1951, p. 388.

[5]*Ibid.*, p. 387.

[6]*Ibid.*, p. 391.

[7]Melvin de Fleur and Sandra Ball-Rokeach, *Theories of Mass Communication,* (3rd ed.), New York: David McKay, 1975, pp. 133–161.

[8]Daniel Bell, *The End of Ideology,* revised edition, New York: The Free Press, 1962, p. 21.

[9]*Ibid.*, pp. 21–22.

[10]Karl Mannheim, *Man and Society in an Age of Reconstruction,* London: K. Paul, Trench and Trubner, 1940.

[11]Ortega Y Gassett, *The Revolt of the Masses,* New York: Norton, 1957.

[12]Bell, *The End of Ideology,* op. cit., p. 28.

[13]Alexis de Tocqueville, *Democracy in America,* (Vol. II), New York: Vintage, 1945, p. 114.

[14]Bell, *The End of Ideology,* op. cit., p. 32.

[15]*Ibid.*, p. 28.

[16]Foster Rhea Dulles, *America Learns to Play: A History of Popular Recreation 1607–1940,* Gloucester, MA: Peter Smith, 1963, p. 349.

[17]John Tydeman and Laurence Zwimpfer, "Videotex in the United States—Toward Information Diversity," *Videotex '81,* Northwood Hills, UK: Online Conferences Ltd., 1981, p. 348.

[18]Alvin Toffler, *The Third Wave,* New York: Bantam Books, 1980, pp. 215–216.

[19]Daniel Bell, *The Cultural Contradictions of Capitalism,* New York: Basic, 1976, p. 54.

[20]*Ibid.*, p. 50.

[21]*Ibid.*, p. 37.

[22]*Ibid.*, p. 34.

[23]*Ibid.*, p. 83

[24]On the concept of information overload see Tydemann and Zwimpfer, op. cit., p. 349 and Tetsuro Tomita, "Information and Communication Policies in an Age Oversupplied with Information," in Alex Edelstein, John E. Bowes and Sheldon M. Harsel (Eds.), *Information*

Societies: Comparing the Japanese and American Experiences, Seattle, WA: University of Washington, International Communication Center, 1978, pp. 19–26.

[25]According to the chairman of the Federal Trade Commission, "imperfect products" should be available because consumers have "different preferences for defect avoidance. Those who have a low aversion to risk relative to money will be most likely to purchase cheap, unreliable products." The FTC has also suspended a program requiring businesses to submit profit reports. The agency had used the data to help decide whether to bring antitrust cases. Again, the cost of the regulation to business and government is cited as a reason for scrapping it. See Michael deCourcy Hinds, "Trade Commission Chief Outlines Shifts in Policy," *New York Times*, October 27, 1981, p. 18.

[26]Samir Amin, "In Praise of Socialism," *Monthly Review*, September 1974, p. 8, cited in Dallas Smythe, "Communications: Blindspot of Western Marxism," *Canadian Journal of Political and Social Theory*, Fall 1977, pp. 1–27.

[27]Chapter Five takes up the relationship of videotex and information technologies to the workplace.

[28]Stanley Aronowitz, *False Promises*, New York: McGraw-Hill, 1973, p. 130.

[29]Fern Shen, "Tomorrow's Wars May Be Won in America's Game Arcades," *Philadelphia Inquirer*, September 20, 1981. 6–G.

[30]*Ibid.* and *Philadelphia Inquirer*, January 20, 1982, p. 3–A. This is how a student in my course Mass Media and Society describes his experience with Pentagon video games:

> Last year I worked in a pinball arcade. As an attendant I had access to all the free pinball, in my case video games, I could play. Soon, with my combined previous skills and added accelerated skills, I have become an expert player. As a result, I have been approached on at least two separate occasions by military personnel giving me serious pitches to join the Armed Forces. My best offer came from a Major General while I was on vacation in Florida. He was so astounded by my play on the "Missile Command" that he offered to *personally* see that I would by-pass all the time-consuming preliminaries, such as boot camp, and insignificant, low-paying assignments, and start at a highly-skilled, high-paying job in ballistics. I was skeptical so I questioned his presence in the arcade, but he produced proper identification and explained that he regularly brought his grandchildren to play.

[31]Heidi I. Hartmann, "The Unhappy Marriage of Marxism and Feminism: Towards a More Progressive Union," *Capital and Class*, Summer 1979, p. 19.

[32]Smythe, op. cit., "Communications: Blindspot of Western Marxism," p. 6.

[33]*Ibid.*, p. 3.

[34]Dallas Smythe, *Dependency Road,* Norwood, NJ: Ablex, 1981, pp. 34–36.

[35]See Graham Murdock, "Blindspots About Western Marxism: A Reply to Dallas Smythe." Dallas Smythe, "Reply to Graham Murdock," and Bill Livant, "The Audience Commodity: On the Blindspot Debate," *Canadian Journal of Social and Political Theory*, Spring–Summer 1978, pp. 109–127 and Winter 1979, pp. 91–106.

[36]Philip Meyer, "Emerging Opportunities in Electronic Technology: What We Can Learn From Newspapers," *Videotex '81*, op. cit., p. 229.

[37]See Stuart Ewen, *Captains of Consciousness,* New York: McGraw-Hill, 1976; also Stuart and Elizabeth Ewen, "Americanization and Consumption," *Telos*, (37), Fall 1978, pp. 42–51, and "The Bribe of Frankenstein," in Vincent Mosco and Janet Wasko (Eds.), *Labor, the Working Class and the Media,* Norwood, NJ: Ablex, 1982.

[38]U.S., Federal Trade Commission, *Report on the FTC Police Review Session on New Media,* Washington, DC: Government Printing Office, 1979, p. 69.

[39]Wicklein, *Electronic Nightmare,* op. cit., p. 22.

[40]Robert Gustavson, "Warner's Communications Empire—It Just Can't Lose," *Access*, May 4, 1981, (120), pp. 2–3.

[41]Wicklein, op. cit., p. 196.

[42]See Gordon B. Thompson, "Memo from Mercury: Information Technology *is* Different," and the reply by Michael Goldhaber, "Dear Mercury: Information is More Different than You Think," both in *Journal of Community Communications*, Spring 1981, *IV* (2), and Thompson's rejoinder in Vol. IV, Winter 1981–82.

[43]Federal Trade Commission, *Report on the FTC Policy Review Session on New Media*, op. cit., p. 82.

[44]C. Wright Mills, *The Sociological Imagination*, New York: Oxford University Press, 1959.

[45]Federal Trade Commission, op. cit., p. 82.

[46]For a good analysis of broadcast advertising in the U.S., see Eric Barnouw, *The Sponsor: Notes on a Modern Potentate*, New York: Oxford, 1978.

[47]Jurgen Habermas, "The Public Sphere," in Armand Mattelart and Seth Siegelaub (Eds.), *Communication and Class Struggle: Vol. 1 Capitalism, Imperialism*, New York: International General, 1979, p. 200.

[48]T. R. Young, "The Public Sphere and the State in Capitalist Society," *Transforming Sociology Series*, (50), Livermore, CO: The Red Feather Institute for Advanced Studies in Sociology, 1979.

[49]Richard Sennett, *The Fall of Public Man: On the Social Psychology of Capitalism*, New York: Vintage, 1974, p. 287.

[50]Pierre Bordieu, "Public Opinion Does Not Exist," in Mattelart and Siegelaub (Eds.), *Communication and Class Struggle*, op. cit., pp. 129–130.

[51]Wicklein, *Electronic Nightmare*, op. cit., pp. 25–26. See also Todd Gitlin, "Cabled Democracy," *Democracy*, October 1981, pp. 60–76.

[52]According to Wicklein (p. 26):

> Most apparently thought the experiment was an advance in participatory democracy. Asked if they wanted to do it again, 96 percent pressed the Yes button. . . .

[53]Raymond Williams, *Problems in Materialism and Culture*, London: Verso, 1980, p. 38.

[54]Stanley Aronowitz, *False Promises*, New York: McGraw-Hill, 1973, pp. 118–119.

[55]For a study of how this process operates see Cary Goodman, *Choosing Sides: Playground and Street Life on the Lower East Side*, New York: Schocken Books, 1979. This is an analysis of how a dominant culture used settlement houses, schools, and the police to cleanse and absorb the street and play life of immigrant communities at the turn of the century.

[56]One example of a human factors analysis of videotex is John Carey, "Selling Teletext to Archie Bunker," in Mitchell L. Moss (Ed.) *Telecommunications and Productivity*, Reading, PA: Addison-Wesley, 1981, pp. 245–254.

[57]U.S. Commission on Civil Rights, *Window Dressing on the Set: An Update*, Washington, DC, 1979; Lynn M. Berk, "The Great Middle American Dream Machine," in Alan Wells (Ed.) *Mass Media and Society*, Palo Alto, CA: Mayfield, 1979, pp. 153–158; and the Glasgow University Media Group, *Bad News*, London: Routledge and Kegan Paul, Vol. I, 1976, and Vol. II, 1980.

[58]See Douglas Kellner, "Television, Ideology, and Emancipatory Popular Culture," *Socialist Review*, May–June, 1979, pp. 13–53; and John Downing, *The Media Machine*, London: Pluto, 1980.

5

Videotex, Information Technology and the Office Assembly Line

The problems which are generally associated with office automation make up the final chapter of a story which began with the industrial revolution, that is with the supreme assertion of capitalist production over all preceeding types of production and over those that exist today. . . . It (information technology) is in fact an organizational technology and, like the organization of labor, has a dual function: as a productive force and a control tool for capital.

Franco de Benedetti
Managing Director
Olivetti Corporation[1]

Tuesday, 10:30 P.M.: The lone computer operator comes over to my console and says in a friendly way, "If you're going to stay here, you'll have to get your productivity up."

"Oh," I say, "what is my speed and what should it be?"

"It's been scientifically set," he tells me, "at 50,000 keystrokes an hour."

Then he sits down, plays a couple of chords on his control panel and up come my figures. The figures show when I started—to the nearest

> tenth of a second—when I took a break and exactly how many keystrokes I'd done all evening. (I am very far below 50,000 keystrokes an hour.) The real supervisor is inside the machine.
>
> Barbara Garson
> Office Clerk
> Wall Street[2]

Post-Industrial Fantasies

Over the past three decades, proponents of a Post-Industrial Society have heralded the demise of industrial capitalism as both a mode of production and a system of social relations. These analysts see the United States as the pioneer in an epochal transformation that will overcome the hoary characteristics of capitalism. The ethos of profit maximization is replaced by the ethos of service; the economic base of capital by theoretical knowledge; the dehumanizing rhythms of the factory by the healthy interactions of personal relationships.

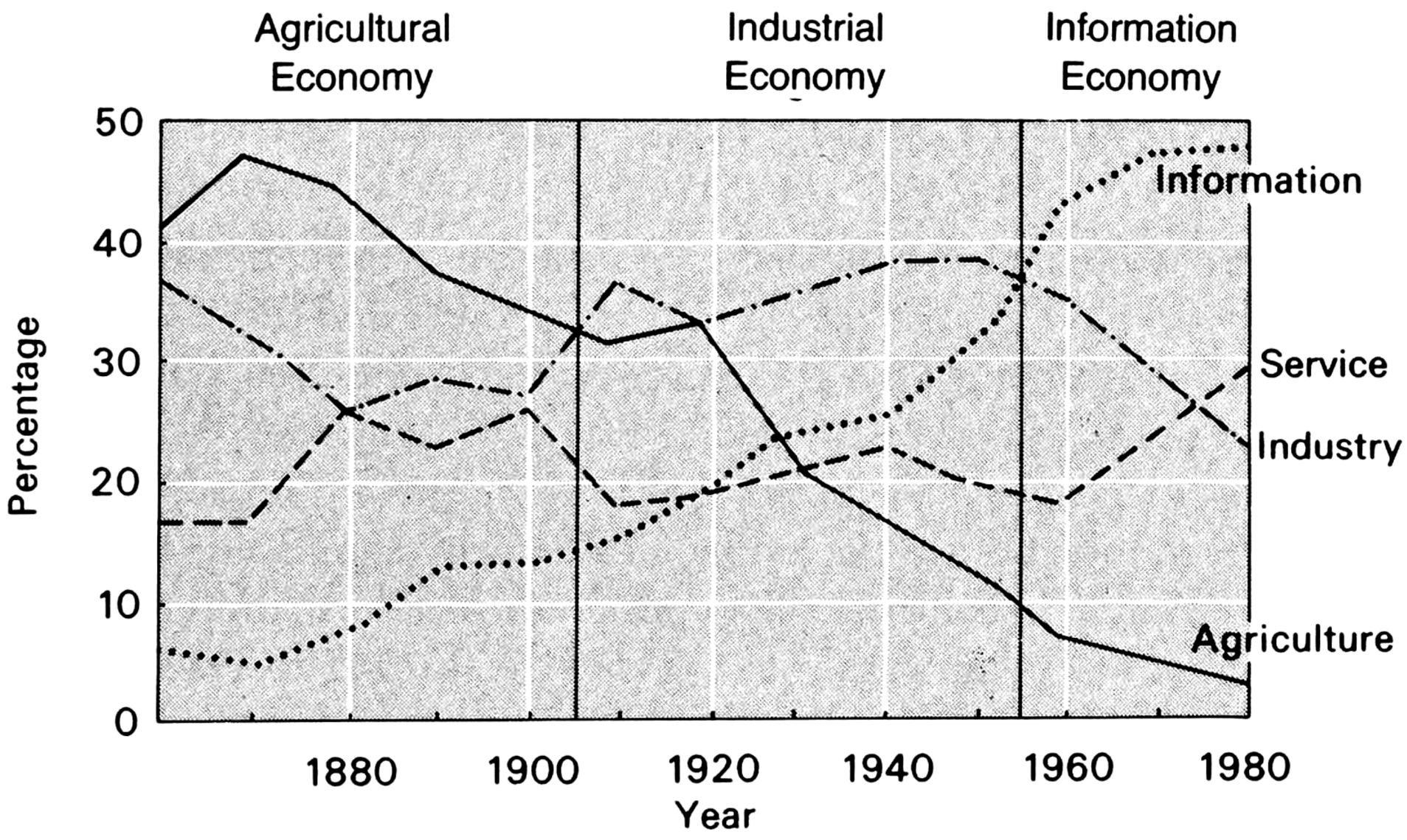
The most important feature of the post-industrial information society is the emergence of a new transforming resource—information technology. Videotex systems are central to the family of information technologies, though they are more commonly referred to in the office as Video Display Terminals (VDT) or Cathode Ray Tubes (CRT).[3] According to the post-industrial perspective, the revolution in microelectronics that brought us first the transistor and now the silicon chip makes information resources the twentieth century equivalent of what coal and oil were for the nineteenth century—the driving force behind fundamental social change. According to Daniel Bell, information resources propel that change by promoting a shift in society's mode of production from mechanical fabrication to processing and recycling. This shift in the mode of production changes the social occupational structure fundamentally. The archetypal blue collar assembly worker is replaced by the white collar service worker. Within the white collar labor force, scientists, technicians, and professionals take over the role of custodian of the social order. With their theoretical knowledge and "intellectual technology" (systems analysis, game theory), these new custodians replace the profit-oriented industrialist whose financial capital and machine technology governed the old industrial order. In sum:

> the new information technology becomes the basis of the new intellectual technology, in which theoretical knowledge and its new techniques, hitched to compunications (computer communications), becomes decisive for industrial innovation.[4]

The post-industrial paradigm has inspired extensive empirical work that specifies some of the details of the information society. The most frequently consulted analysis, Porat's multi-volume research sponsored by the U.S. Department of Commerce, shows how the collection, processing, and distribution of information plays a pivotal role in the U.S. economy. Whereas in 1900 only 10% of the U.S. labor force was engaged in information occupations, information workers now comprise 45% and collect 63% of all compensation (Figure 5–1).[5] Other research has pointed to the remarkable growth in the capacity of information technologies and the equally remarkable decline in their costs. According to one study, a single "computer-on-a-chip" in 1985 will have 25 times the capacity of a computer that filled a room 15 years ago.[6] Microprocessors have reduced the costs of computation by 100,000 since 1960.[7] Indeed, according to an MIT report, if computers are compared to cars in terms of declining costs and developing technology, a Rolls Royce would cost $2.50 and would get 615,000 miles to the gallon.[8] The costs of video display terminals and micrographics have decreased also, though at a slower pace. All of this is enhanced by the convergence of computer technology and telecommunications into national and transnational data-base networks. Figure 5–2 situates this growing telecommunications sector within the context of overall U.S. business activity.

This empirical research has led policy makers and practitioners to anticipate a future of heightened productivity and richer worker experiences.[9] As office managers fear a tidal wave of paper, 120 *Fortune 500* companies finance the American Productivity Center in Houston whose Project IM-

FIGURE 5–1 Changes in the U.S. labor force 1860–1980.



Source: Marc Uri Porat, *The Information Economy* (Vol. I). Washington, DC: U.S. Department of Commerce, 1977.

TABLE 5–2 Business activity and the growth of telecommunications.

Value of All Business Activity, 1978: $2,100 billion. Cumulative Growth Rate 1970–80: 30%
Value of Business Information Activity, 1978: $1,000 billion. Cumulative Growth Rate 1970–80: 35%
Business Use of Telecommunications Services, 1978: $30 billion. Cumulative Growth Rate 1970–80: 95%

Source: Charles Jonscher, The Economic Role of Telecommunications. In Mitchell L. Moss (Ed.), *Telecommunications and Productivity.* Reading, MA: Addison-Wesley, 1981, pp. 84–85.

PRINT refers to IMprovement of PRoductivity with INformation Technology.[10] The goal of this center is to apply computer communications systems to boost investment in office work and thereby increase productivity. Capital investment in office workers now stands at a paltry $2,000 per capita compared to $25,000 per factory worker, and $35,000 for each agricultural worker in the United States.[11] According to a Citicorp vice president, projects such as this will not only enhance productivity and corporate growth: they will make every clerical worker "an entry-level manager."[12] Declining industrial centers are also part of the post-industrial fantasy. New York is now hailed as Info City:

> A revolution is brewing in New York City: Information is taking over. The revolutionaries are the people who have learned how to exploit the new micro-technology of computer-linked communications to the fullest: manufacturers who own no workshops, bankers who handle no cash, retailers who advertise goods not available in any store, and businessmen and women who "talk" to work rather than ride.
>
> What is now unfolding is the most massive restructuring of the city's economy since the Industrial Revolution.[13]

What are we to make of the claim that information technologies such as videotex provide the basis for increased productivity *and* greater workplace creativity and satisfaction? Has the dialectical contradiction between labor and capital evaporated and been replaced by the harmonious dynamics of a personal service economy? To be sure, it is no longer a question of whether information technologies are becoming strategically significant in the structure of work. But who controls the production of information and to what uses are information technologies being put? According to Daniel Bell,

> Charlie Chaplin's *Modern Times* at one time symbolized industrial civilization, but today it is a period piece. The rhythms are no longer that pervasive. The beat has been broken.[14]

Recent developments in the Marxist sociology and history of the labor process suggest to the contrary that the beat goes on.[15] In doing so, this work broadens our understanding of information technology in the workplace and the meaning of post-industrialism. Moreover, as Webster and Robins perceptively state:

> . . . behind the rhetoric of the "information society" lies the reality of a managed, rationalized consumer capitalism. . . . it is necessary to move beyond this to reappropriate the language of liberation; to repossess the socialist tradition of utopian thought and generate an alternative image of a socialist future to that offered by "information society" seers. The precondition for any such reappropriation is to reveal the absurdities of electronic futurism.[16]

The same devices that are instruments of corporate control in the home are used to extend that control into the contemporary workplace. An IBM vice president put it more succinctly: "People will adapt nicely to the new systems . . . if their arms are broken. We're in the twisting stage right now."[17]

Post-Industrialism Means Controlling the Labor Process

Contemporary radical scholars such as Stephen Marglin, David Montgomery, and, most notably, Harry Braverman have advanced our understanding of what Marx called the "intensification" of the labor process:

> With the capitalist system all methods for raising the social productiveness of labor are brought about at the cost of the individual laborer; all means for the development of production transform themselves into means of domination over, and the exploitation of, the producers; they mutilate the laborer into a fragment of a man, degrade him to a level of an appendage of the machine, destroy every remnant of charm in his work and turn it into hated toil, they estrange him from the intellectual potentialities of the labor process in the same proportion as science is incorporated as an independent power . . .[18]

This process of intensification, the beginnings of which Marx discerned in the nineteenth century, is the subject of Braverman's study of the degradation of work in the twentieth century. Until the late nineteenth century, workers were the sole possessors of the skills and knowledge necessary for the immediate process of production. Though gathered under the watchful eye of the capitalist, workers themselves controlled the labor process. They

regulated pay scales, production rates, the quality of the goods they produced, production methods, and the size of the labor market. Craft control, of course, hampered the development of capitalism by limiting the extraction of absolute surplus value and by hindering production in the sole interest of capital. What was at stake for the capitalist was not only efficiency, but hegemony over the workplace.

The power of the working class essentially resided in its control over information about the labor process and channels for communicating that knowledge. The ideological and technological offensive that capital launched against craft workers was aimed as much at seizing control of the labor process as at improving the productive efficiency of that process. Braverman describes how under the guise of efficiency and the rationale of inherently indolent labor, Taylor and other agents of "scientific management" systematically stripped workers of their knowledge and control of the labor process and made it the property of management. Henry Ford refined the process by investing this knowledge into machinery. In this way, the craftsman was reduced from a decision-making producer to a machine tender, from a creator to a mere input to a production process. The advent of Taylorism and Fordism was not a matter of technical necessity, but rather the embodiment of managerial intent in the social relations of capitalist production.[19] The shape and uses of technology in the capitalist enterprise reflect what David Noble calls the "ideology of control" in which the "distrust of human beings by engineers is a manifestation of capital's distrust of labor. The elimination of human 'error' and uncertainty is the expression of capital to minimize its dependence on labor by increasing its control over labor."[20]

Such control takes a variety of forms. Researchers with the Technology Policy Unity of Britain's Aston University describe six concrete areas in the factory that are coming under the direct control of computer communications:

1. Controlled movement of materials and finished products.
2. Control of process factors such as temperature, pressure, and humidity.
3. Shaping, cutting, mixing, and molding of materials.
4. Assembly of components into finished products or subassemblies.
5. Quality control at all stages of manufacturing for inspection, testing, and analysis.
6. Organizing the manufacturing process including design, stockkeeping, dispatch, machine maintenance, invoicing, and task allocation.[21]

Control is the operative word here. The production of computer-controlled machine tools and now the growth of robotics extend that control

over the industrial work force in the name of productivity growth. Robots used to be merely the stuff of science fiction. Today, industrial robots, looking quite unlike their cinematic forebears, are used extensively in machine tending as well as assembly, particularly in the United States and Japan. Robots typically take the form of machines with one arm that can be raised or lowered, extended or retracted a full 180°. At the end of the arm is a controllable joint for mounting tools or handling devices. The difference between a person sitting on a chair using one arm to operate and feed a machine and a robot doing this is that the latter has a three foot reach, can carry a 150 lb. load, and, once programmed, works continuously. Robots don't take coffee, lunch, or toilet breaks. They can be run for well over eight hours a day. What's more, they don't joint unions and call strikes. As one analyst puts it:

> This is the very essence of rationalization: spend the minimum amount of money on equipment that is as flexible as possible, displace the maximum number of workers and boost profits immediately.[22]

Proponents of videotex are particularly glowing in their vision of the home office. According to one British report on the "Home Office":

> In comparing the connect-hour costs and computing power of different data processing vehicles, videotex and personal computers are found to be more controllable and to yield considerably better cost/performance ratios than in-house mainframe or time sharing alternatives. . . . The greatest opportunities, however, await those able to conceive new applications for which videotex is uniquely suited. Such conceptions will develop slowly but the goal of defining them is a compelling reason for organizations to conduct at least limited experiments with videotex.[23]

But the current reality of the electronic home workplace belies the benign appearance of videotex. Most home work produced by the growth of electronics is what microelectronics executives in California's Silicon Valley call "assembly contract labor." This is work performed by poor Asian, Chicana, and Latina women who make up the bulk of a growing black market economy in the assembly of computer circuitry. These workers must go to their bosses' homes to pick up parts for home assembly. The women take them home, assemble the circuits, and clean the solder with dangerous solvents which they boil on the kitchen stove. For this they are paid low piece rates. Indeed, the electronics industry is turning to assembly contract labor because of the low pay that these primarily undocumented workers are forced to accept. According to the director of the union-funded Project on Health Safety in Electronics:

> My first reaction when I heard about this was that I was totally sick to my stomach thinking about these women working at home with pots of solvent boiling on the stove and kids running through the kitchen. The potential for exposure to families is really outrageous.[24]

The rationalization of the workplace and the atomization of the labor process have extended beyond the point of production. Indeed, perhaps the most important dimension of recent work on the capitalist labor process is not the sorry tale of the destruction of craft, but the mechanization of clerical and service work, the bulk of the "white collar" work force, the backbone of the information society. The application of information technology in pursuit of the "automated" or "paperless" office reflects the same managerial intent that stimulated the rationalization of factory labor: the double-edged sword of increased control over the labor process as embodied in the separation of conception from execution *and* enhanced efficiency and productivity. While the full impact of information technologies have yet to be assessed, the trends are clear. Rather than allowing for worker creativity and liberation from repetitive work, the thrust of office automation is to further regiment the knowledge worker. The skills of handling and transforming information into a usable form are taken away from the secretary, clerk, and researcher, and placed in the machinery. There is less autonomy, more fragmentation of skills and tasks, and more managerial control.

The Bell System is literally on the front lines in the control of clerical labor. Bell not only produces equipment and supplies services to automate the office. It applies computer/communications to its own workers. Consider FADS. The Force Administration Data System is a computer system that provides supervisors with productivity readings every 15 minutes: how many operators on the board, number of calls handled, average work time per call, number of late answers (callers kept waiting more than 10 seconds), and average reaction time (how long before an operator responds to the beep signalling another call). Though FADS has been around for some time, computerization squeezes out what little control workers could exert under less automated systems. According to Robert Howard who has reported extensively on the computer-controlled office:

> Workers cannot go to the bathroom unless they find someone to take their place. "If you close your terminal," says Jean Miller, a service representative in Washington, "right away the computer starts clacking away and starts ringing a bell." In some offices . . . the computer even gives the supervisor a printout of how many calls each clerk takes per day and how many times she leaves her position.[25]

Howard sees the feeling of powerlessness pervading the ranks of Bell clerical people as a result of this seemingly scientific and anonymous form of control:

> The potty policy (Bell's bathroom permission rules) is only part of a more extensive Bell System management practice. Whether it's having to ask permission to go to the bathroom, or being constantly monitored and supervised, adults are systematically treated like children. It is a time-honored way to convince them of their powerlessness, to get them to assent to management's close control of work.[26]

Bell has gone as far as to dispense its own pills. In addition to well-known tranquilizers, there is AT&T's brand known as "Bell Telephone Aspirin" or just "greenies." Greenies combine aspirine and caffeine to help operators and their harried supervisors make it through the day. The Connecticut Union of Telephone Workers surveyed 200 service representatives at Southern New England Telephone, and found that 37.2% were taking tranquilizers or other medicine for nervous conditions, 39.2% had increased their consumption of alcohol since starting the job, and 12.3% were using both.[27]

The application of factory control principles to the office is expanding beyond the confines of companies such as AT&T where military regimentation has been the rule since the company's founding. These are the comments of business executives on the benefits of the electronic office:

- a way to enforce discipline and standardization in the office
- business can finally monitor and measure the clerical function
- the real payoff comes because managers are able to widen their span of control.[28]

Control of labor means more than commanding employees. It also means successfully demanding that they receive less pay for their work. Today the average clerical worker earns $9,000 a year before deductions. But for the most automated of clerical professions, banking and insurance, pay scales average 8–19% below the national average. As one Citibank executive remarked rather clinically:

> During the 1960s, hardware and software represented only some 10% of our total processing costs. All other expenses equalled 90%, labor alone accounted for a full 70% of the total. The issue was to flip the ratio entirely, to stand it on its head until labor costs and other operation costs constituted 30%, while hardware and software made up the rest.[29]

A clerk at a public utility in New England puts it less clinically, but certainly cuts through the post-industrial fantasy with this comment:

> When they set up the administrative services center, they said it was more democratic. We wouldn't have "bosses" anymore, just "clients."

> But they were just trying to save money. A clerk gets $150 a week while a secretary gets $185 for serving just one person.[30]

Wherever information technology has been introduced on a large scale, there is substantial reorganization of clerical work. Standardization limits opportunities for upward mobility. Meaningful skill differentials collapse. Consequently, just as craft workers became appendages of the assembly line, so clerks, the keepers of information, have been turned into word processors, the machine tenders of the white collar world. Moreover, where clerical work is not regimented (or taylor-made as some have quipped), office automation does away with the information worker.

A 1980 report issued by the Science Council of Canada summarizes the findings of research on unemployment impacts:

> —Western Electric, the manufacturing arm of AT&T has already reduced its labor force by 50%;
>
> —the Nora-Minc report on information technology in France forecast that 30% of employees in banks and insurance companies would lose their jobs in 10 years;
>
> —the Jenkins-Sherman report on Britain forecast 25% or 5 million unemployed by 1990 across the country as a result of the uses to which information technologies are being put.[31]

Other reports have provided similar findings and forecasts for the U.S., West Germany, and Japan.[32] The Science Council report singles out the disproportionate impact of such unemployment on women:

> Women are concentrated or even aggregated into relatively few occupations, mostly in the tertiary sector, which includes the information handling sector of the economy. Now what does this mean when we talk about the impact of the microelectronics on the labour market? I think it means that the areas in which women largely have become employed are going to be some of the areas most affected in the future. Whereas the technological change resulting from the automation of a factory during the fifties and sixties had the impact to a large extent of forcing out traditional male blue collar workers, the microelectronics revolution of the eighties will disproportionately affect the women working in the white collar occupations. In particular, the more routine jobs, even routine jobs associated with computerization, telex operators, keypunchers, low level programming, bookkeeping aspects, are going to be affected at an early stage in the eighties.[33]

All things considered, the issue is not so much whether information technologies will make workers *more* productive, but whether it will make them productive at all.

More ominous for proponents of the post-industrial fantasy is that the very people who are supposed to be the prime movers of the information society—technicians, programmers, engineers, and other knowledge workers—are also beginning to feel the effects of taylorization. Computer programming, once considered a shining example of the new craftsmanship, has been subject to an intensive division of labor that has turned the majority of programmers into semi-skilled workers. According to one analyst who has followed closely the occupational structure of computer programming:

> Canned programs, structured programming techniques, and modularization of programs are designed to make the supervision of software workers easier and more like the supervision of other workers. By carefully designing and structuring the work so that workers are forced to regulate their actions according to the demands of the work process, the organization of the work and of the workplace are turned against them. For all practical purposes, regulation and supervision become automatic.[34]

Computer-aided design and manufacture is having the same impact on designers and engineers that it earlier had on machinists. For example, Rolls Royce, once synonymous with craft, has introduced shift work, job evaluation, and fragmentation of design tasks with the aid of a software program appropriately named HARNESS.[35] Today, information technology is indeed central to what Richard Edwards calls "technical control" of the labor process: elaborate feedback systems capped by an IBM 370 which have the potential to control the entire productive process from planning operations to monitoring and evaluating work. Such systems provide capital with new dimensions of control over *all* aspects of the labor process.[36]

For a closer look at the impact of computerization on "professional" labor, consider this conversation between a reporter and a salesman:

"Doesn't it rob a salesman of his only source of confidence, the only tool of his craft, if a company systematically collects every bit of information about his methods and contacts?"

"I'll show you something," he said. "Are you absolutely sure that this will be confidential?"

He pulled out a great sheaf of papers from his desk. It was a coded list of more than 300 executive tasks. Like: H721—Write a Report;

> S503—Prepare a Training Program; S102—Talk on Phone after a meeting. (At his request, I didn't copy the true numbers.) "Using these codes we report all our activities in half-hour intervals. Then, at the end of the month the computer breakdown tells us how we spent our time."
>
> "Is this used to rationalize work and set norms?" I asked.
>
> "The individual uses it for his own self-discipline, and the team leader uses it to evaluate the best use of the men's time," he said.
>
> He saw I was unconvinced. . . .
>
> "Well," he assured me, "our information is never used competitively." (In the corner of his office I noticed a beautifully lettered chart listing the team members, with columns for "productivity" by month and year-to-date.)
>
> "Say," I asked, "how are you going to code this conversation?"
>
> "I guess I'll just have to take a 69," he smiled. "Personal interview."[37]

The reporter can take no satisfaction from such a story. For reporters are among the information professionals whose jobs and health are grist for the electronic mill. Videotex devices are increasingly mainstays in newspaper offices. According to the American Newspaper Publishers Association, there were 23,000 such devices in use as of December 1980. Newspaper use of videotex or, as is the more common expression in this context, the video display terminal (VDT), has increased at a 50% annual rate since its introduction in the 1960s. Thus, while newspaper use represents a small percentage of the two million or so in use throughout the United States, the growth rate of VDTs indicates that the sound of the typewriter may become a faint memory in the near future. VDTs are touted with the same virtues for the newspaper industry as in other businesses: instant access to information and rapid copy editing. Moreover, there is a special labor-cutting advantage for publishers. VDTs make it possible to produce copy that can be set automatically (no more typesetters). This can be done as soon as a reporter completes a story or it is held in computer memory for future use. A recent article in the *Columbia Journalism Review* chastises U.S. media for ignoring the substantial impacts of VDTs on reporters and other white collar service workers:

> . . . there is a dearth of coverage. In some cases this may be because reporters genuinely do not see a story in VDTs. But it would not seem too farfetched to conclude that at the management level another factor is at work—that in their concern to protect a vast investment, editors and publishers are subordinating the public interest to a private one.[38]

In addition to citing the negative employment impacts of such devices, the *Review* cites European and Canadian studies which report on physical and psychological health hazards. The latter range from headaches and cataracts to a strong sense of alienation from work. On the latter point a union organizer, sensing the link between home and office factory, compares using a VDT to "sitting in front of a TV and reading credits seven-and-a-half hours a day."[39]

The rhythms of the degradation and dequalification of labor have not stopped. Not only does the beat go on, it has intensified. The concrete result of Taylorism and Fordism was the degradation of human dexterity. The information revolution carries these managerial strategies to a new height—the degradation of the human brain. Thus the structural factors of labor and capital have not been replaced by communications and information; they are merely expressions of the same old conflict.

Constraints and Resistance to the Office Factory

Led by Braverman's research, critical thinking on the capitalist labor process has helped to debunk utopian fantasies of a post-industrial information society. More specifically, such thinking has helped us to recognize that in the workplace, as in the home, the few who control the means of producing this information society will benefit at the expense of the many who toil on its old and new assembly lines. But just as in the home, the extension of capital into the electronic workplace is not without resistance. This chapter concludes by examining sources of such opposition.

Despite such *Wall Street Journal* headlines as "Computer Choler: Managers Resist Technology for Themselves" with subhead "Will I Look Like a Jerk," it is unlikely that strong resistance to videotex-like applications in the workplace will come from management. Nevertheless, research is beginning to question the cost-benefit assertions that proponents of office automation systems have been making for years. The series of studies conducted by the Public Policy Research Organization at the University of California, Irvine is particularly instructive. Close observation of actual computer communications office applications reveals that the economic costs of computing are higher than people generally estimate and, in fact, are rising. Thus, according to King and Kraemer, while the cost of raw computing power has declined markedly, the often hidden costs in expert personnel, general software needs, and organizational dependency on a complex and poorly understood system make the actual costs considerably higher. Of particular significance is their finding that decentralized computer communications systems costs "are rising faster than the already rising costs of computing generally."[40] Here is a typical example:

> The university's financial administrators were dissatisfied with the service they were receiving from the campus computer center and decided that the best way to handle their needs was to buy and install a stand-alone, large minicomputer dedicated to campus financial management. It was, of course, felt to be a cost-effective strategy as well. They hired a staff of about ten to program and manage the enterprise. This was about three years ago. At this time, they have two computers, and a staff of 40, and a desperate need for a third machine. The computing center they left in their quest for better service also has more computing capacity than before they left and a larger staff as well.[41]

Decentralization encouraged uncontrolled expansion and job-hopping of programmers from one campus facility to another. This bid up the salaries of university employees. Such cost growth tends to justify the assertion of more direct managerial control. As the authors conclude:

> Unless top management imposes serious restrictions on certain kinds of capability or activity at the unit level, reserving them to some central node under direct managerial control, there really is nothing but the budgetary process and broad-brush, top-down policy to enforce management expectations. These kinds of enforcements often prove to be much more costly and less effective than more direct control of a centralized resource that a central computer provides.[42]

The organizational consequences of computer communications systems are beginning to look a lot like those of nuclear power plants. A major source of resistance to both is beginning to come from the sheer costs associated with their growth and diffusion. But also, like nuclear power plants, computer systems are increasingly justifying a considerable amount of centralized control to manage the complex operations and social consequences of such systems.

Organized resistance of a more direct nature is beginning to grow throughout the information world. This is not a surprising development to students of working-class history. Resistance to the scientific managers' tools for concentrating information and, hence, power, from primtive electronic measurement devices to hierarchical computer systems, is as much a part of working-class history as the struggle for the eight-hour day. Edwards had shown how different types of managerial control originated in breakdowns in capitalist hegemony over the labor process. Palmer, Montgomery, and Stark have shown how scientific management met fierce resistance. Davis's research on the IWW illustrates graphically how unskilled workers understood the real motivation behind the thrust for efficiency and responded with sabotage. Watson shows how this resistance was turned into a form of "counterplanning on the shop floor."[43]

Recent conflicts over the introduction of information and communication technologies in the printing industry indicate that contemporary struggles may become quite intense.[44] Nevertheless, until recently, the United States labor movement has been ambivalent on the introduction of degrading technologies. A 1979 survey of labor contracts shows that only 17% of agreements have any language that regulates the introduction of information technology.[45] However, actions in the United States and particularly Western Europe and Scandinavia indicate that things are beginning to change. The United Auto Workers Ford Department recently entered the most comprehensive list of demands to date on the uses of new technologies in its negotiations with the auto manufacturer. These included:

- complete union access to information created by any company computer system;
- prohibition on computer applications for monitoring, disciplining, or conducting time studies;
- creation of a "data committeeman" in each union local to monitor new systems and determine their impact on workers;
- establishment of new technology committees at both the local and company-wide levels;
- right to strike over technology conflicts that cannot be resolved by the company-wide joint committee.[46]

Strong Ford opposition, the lack of rank and file mobilization, and high auto industry unemployment rates led the union to withdraw its strongest demands. Nevertheless, it did win some victories on this new front. These included formation of a National Committee on Technological Progress to inform workers on the impacts of computerization, programs to train workers in computer-controlled machinery, and an assurance from Ford that new technologies would not be used to take work away from union employees.[47]

The potential for more substantial change has grown recently with the formation of a national movement to unionize office workers in the United States. Working Women, a uniquely successful national organization of 10,000 office workers joined with the Service Employees International Union to create SEIU District 925. Their aim is to organize the 90% of the 20 million office workers in the United States who are now unorganized. The SEIU is the seventh largest AFL-CIO union with 650,000 members, 50,000 of whom are clerical workers.

In Europe the struggle is further along. In Britain, APEX, the union which represents clerical and computer workers has produced a report on word processing that rejects proposals limited to employment protection:

> No redundancy agreements simply redistribute unemployment to the potential job seeker just out of school—making him or her potentially more and more unemployable . . .[48]

APEX and the National Union of Jouralists have produced guidelines on the use of word processors and video display terminals to guard against the eyesight and stress impacts of these devices. But while these guidelines assert some measure of control over the electronic office work process, they stop short of questioning the pace of work, the formation of mechanized typing pools, and the control over shift work. Moreover, APEX has echoes the view of the national Trade Union Congress which welcomes the introduction of microelectronics into the workplace in the hope, without a clear sense of strategy, that trade unions can exert some degree of control over the changes that this introduction creates.[49] On the continent, the electronic office has stimulated unionization drives in traditionally underorganized occupations. For example, in West Germany, where computerization of the banking and insurance industries is expected to eliminate up to 40% of jobs in the next 10 years, the Insurance, Banking, and Commercial Workers Union now has 350,000 members and is growing by 20,000 members a year. One reason for this growth is the union's successful negotiation of contracts preventing employers from laying off workers involuntarily as a result of technical changes in work. Moreover, the union has made companies pay for all training needed to help workers adjust to jobs changed by automation.[50]

The most advanced trade-union strategy has been developed in Scandinavia. For example, the Iron and Metal workers Union in Norway forced management to sign a "data agreement" which extends a strong measure of worker control over the introduction and use of information technology. The agreement includes worker election of full-time company-paid new technology stewards. These "data shop stewards" receive special training in computer technology and are given complete access to the plant to collect detailed information about management plans in order to develop the union's response. Moreover, under Norwegian law and union contracts, management must provide the union with information on every proposed system in plain language so that the union can express its views before the system is installed. Failure to do so gives the union the right to keep the system out. Commenting on the Norwegian case, David Noble pinpoints the key issues that comprise struggles in workplaces throughout the world—information and control:

> The situation at Kongsberg (in Norway) is not one in which the union and management are in harmonious cooperation.
>
> The task of the data shop steward and the union in general is to engage as effectively as possible in a struggle over information and control—a struggle engaged in with equal sophistication by the other side.[51]

Indeed, in a unique reversal of "technical progress," worker control, in this case, has extended their knowledge of the productive process from the shop floor to the planning office where computerized numerical control revealed to workers the mysteries of design, thus making several control managers redundant.[52]

Alienated Consumers, Alienated Producers, and The Beginning of Resistance

This chapter has suggested some of the fantasy features of the post-industrial society. Rather than a new world of deeply satisfying work that once and for all breaks the dehumanizing rhythm of factory labor, we see a deepening, and intensification of the rhythm. The post-industrial information society does not tame power relations, turn them into simple gaming strategies within a context of fundamental agreement, purified of ideological rancor. Rather, the shift from the mechanical to the electronic, from the conveyor belt to the computer, from typewriter to videotex, shifts the site of conflict, the instruments of struggle, but not its clear presence. Chapter Four suggested how the growth of videotex and information technologies intensifies the creation of alienated consumers. This chapter has shown how the same technologies, packaged in different ways, create alienated producers.

But we are only at the beginning of the "information revolution" and the struggles that it is creating. An understanding of past resistance to technological control coupled with an awareness of new technologies, can help to pinpoint the spaces for resistance that exist today. Moreover, it can suggest it can suggest ways to use these technologies, not just for resistance, but to build alternative work structures that are liberating rather than oppressive. Confronting the latter means reevaluating the very meaning of efficiency. Perhaps we need to define the efficient use of communications technology as that which increases the ability of working people to control the productive process and share collectively in the relationships of daily work life.[53] The task is an urgent one as Andrew Zimbalist reminds us:

> The actual reshaping of technology is the task of a broad political movement. Consciousness of the uses and purposes of different technological forms are necessary for such a movement to be successful. The sufficient conditions might be an entirely different mode of production.[54]

Chapter Seven suggests some of the indicators of such reshaping. But before we consider these, let us turn to the global context for understanding the growth of information technologies and videotex. For the domestic struggles over home information centers and VDTs in the office are situated in a world setting that is moving dangerously toward an international division of labor and deepening struggles over the control of information resources, including videotex.

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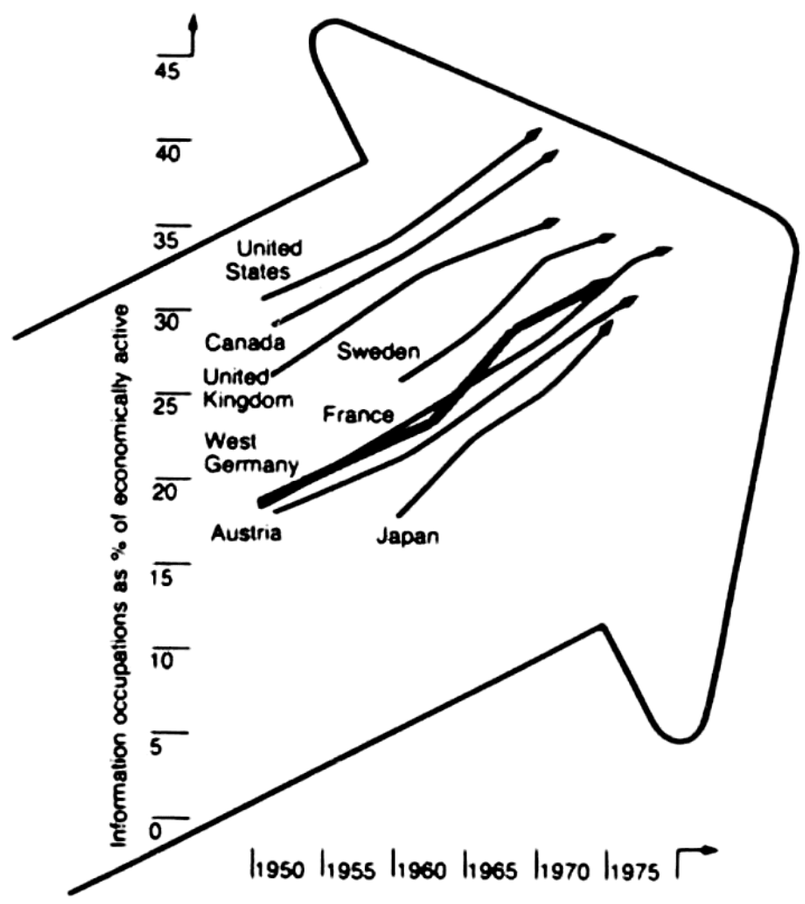

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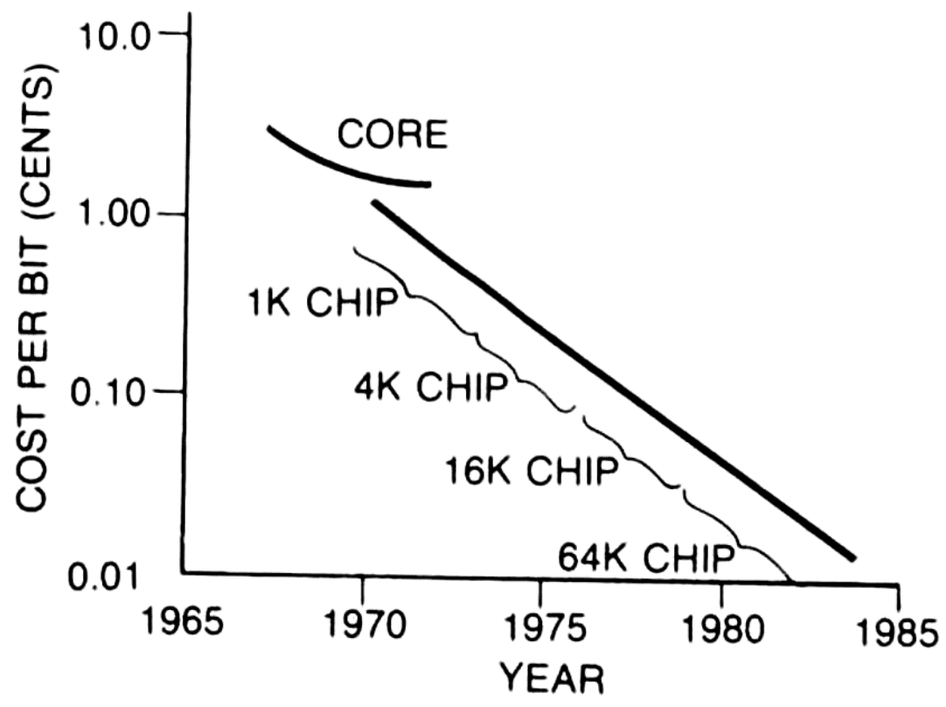
This figure indicates the declining cost of computer main memory.



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[54]Andrew Zimbalist, *Case Studies in the Labor Process*, op. cit., p. 126.

Videotex and Information Technology for Global Domination

The July 11, 1981 issue of the *Washington Post* carried a story about an organization whose members want to enact legislation that would prevent a large U.S. media company from producing and distributing information within the members' country. The organization fears that the U.S. company would use its enormous resources to monopolize communications within that country.[1] This story sound familiar. Isn't it about the complaints that Third World nations have registered against the control of Western media powers over global information flows and the need to take corrective action? No. Far from it. The complaining organization is the American Newspaper Publishers Association. ANPA, a staunch defender of the free flow of information in *international* debates, is here seeking legislation to prevent the Bell system from producing and distributing information services such as videotex and the electronic phone directory. The ANPA has complained bitterly that the mere discussion at the UN, particularly by the United Nations Education, Science and Cultural Organization (UNESCO), of possible controls on the dominance that media conglomerates exert over global communications is an invitation to censorship.[2] Nevertheless, the ANPA has succeeded in convincing U.S. legislators to incorporate into new communications bills, one version of which passed the U.S. Senate in Fall 1981, measures to

restrict information production and distribution in the United States, not by a foreign power but by another U.S. company. ANPA claims that their action is a vigorous defense of the *free flow of information* principle. If AT&T were given free rein to produce an electronic newspaper by videotex, that company would come to monopolize the business and thereby put out of business potentially alternative voices, alternative points of view. Consequently, by promoting legislative restrictions on information production, ANPA is actually defending the free flow of information in America. But this is essentially the argument that Third World nations make at the UN and other international bodies—the same arguments that the ANPA vigorously contests. Third World nations argue that they are defending freedom by proposing restrictions on Western mass media imports because the size of Western media conglomerates would otherwise enable them to so dominate Third World production/distribution networks that indigenous media would find themselves overwhelmed. In fact, there is extensive evidence to suggest that Western media do not merely threaten to dominate the Third World. They already do.[3]

Attempts to erect legislative restrictions on the free flow of information do not represent a substantial change in U.S. media history. In the 1930s, U.S. wire services sought restrictions on what they considered the cultural imperialism of then-dominant British and French wire services. The latter viewed these restrictions as dangerous impediments to the free flow of information.[4] In electronic media, restriction is more the rule than the exception. In the 1940s, major AM radio networks successfully convinced the FCC to impose restrictions on FM radio that did irreparable harm to the industry. This action put enough independent FM operators out of business that today most FM outlets are owned by AM companies. What one optimist of the 1940s called "Radio's Second Chance" has become radio's secondary service. Similar restrictions had similar consequences for the growth of UHF and cable television. In each case, industry interests such as the established television networks, strong advocates for the global free flow of information, succeeded in restricting the domestic flow by stifling the growth of alternatives to established fare.[5] The networks succeeded in actions that if practiced by Third World nations would be criticized soundly as dangerous censorship.

What this tells us is that like pluralism, mass society, and post-industrialism, the free flow doctrine is a major fantasy of the twentieth century information world. To call it a fantasy is not to underestimate its significance. Rather, that significance is largely ideological, a justification for opening information markets abroad, maintaining profitable markets at home, and deepening inequities in the global distribution of information resources.

From Developmentalism to the World System

The free flow position is actually part of a wider *developmentalist* perspective. This perspective links expanding electronic media to urbanization, increased political involvement, and, ultimately, modernization. It is a view that has guided most research on international mass media and telecommunications since the end of World War II. Promoted by heavily financed U.S. government research, the developmentalist view has justified the position that massive exports of media flowing freely from the West, along with the manufactured goods and other products of the "free trade" policy, would help create the conditions for economic growth. Jeremy Tunstall captures the flavor and the irony of how the leading U.S. academic/government development media experts promoted their gospel through a U.S.-controlled UNESCO:

> Daniel Lerner, Ithiel de Sola Pool and Wilbur Schramm in the 1960s became a sort of travelling circus—jetting back and forth across the world, advising first this Asian government and then that US federal agency. Daniel Lerner was the intellectual leader of the circus. Ithiel de Sola Pool was the commissar of the group—one of the US Department of Defense's most vigorous academic spokesmen, and a vigorous anti-communist (with not a little admiration for the Chinese and their dedication to efficient propaganda). The third member of the circus was Wilbur Schramm; although the other two were regular travellers, Wilbur Schramm was the travelling salesman. Based at Stanford, Schramm in the 1960s became Unesco's favorite mass media "expert."
>
> The triumph of the "value-free" American ideology of the media was nowhere more remarkable than in Unesco, the United Nations agency whose areas of activity include the media. Unesco has propagated such American notions as the "free flow of information," which inevitably favor the major media exporting nation. The most active architects and proponents of Unesco media doctrines have been Americans.[6]

Just as the post-industrial fantasy has worked its way through academic, government, and business circles, the ideology of development communications now fills the speeches of business and government leaders. Michael Blumenthal, former Treasury Secretary and now Chairman of the Burroughs Corporation, has offered a most articulate statement of this view. Referring to the information sector, he pays homage to the post-industrial age:

> What an industry ours is! It was not so very long ago that Carl Sandburg identified this city as "Hog Butcher . . . Tool Maker, Stacker of Wheat . . . City of the Big Shoulders." . . . That has all changed, however; and in large part, it is the information and communications industries that have precipitated that change, that have brought us to the post-industrial age. Our urban centers have become, to a great extent, information processors and communicators; and now—if I may be allowed to make a hostile metaphor friendly—there are small silicon chips on those big shoulders.[7]

Central to this society is the role of information in development. For:

> information has finally made it to center stage. Perhaps one of the seminal contributions of the 20th century to the development of the human race will be in the perception and use of information as the central process around which all else revolves, the focal point of all our activities.[8]

But this focal point, Blumenthal maintains, cannot advance development if nations, for whatever good intentions, seek to impose tariff and other barriers on the free flow of information. Recognizing that "the issue here is largely one of the U.S. versus the rest of the world," Blumenthal nevertheless calls on U.S. companies to "work together for their mutual benefit":

> as long as we can agree in principle that costs of global protectionism are ultimately greater than its benefits, then we have responsibility to oppose it whenever it appears. And no industry, no group of people, has a greater stake in maintaining that opposition than we do, for the information industry is the fundamental force behind global interdependence. Without that interdependence, the world's people cannot fully participate in the fruits of the technology and the services we have to offer.[9]

Critical empirical work has challenged the developmentalist perspective and the policy recommendations that emanate from it. This work suggests that the *failure* of modernization is linked in part to a system of media imperialism whose most powerful elements—multinational corporations and Western states—benefit from that failure. Mass media exports, from technologies to television programs, flowing freely from developed to Third World countries, reinforce the general dependency of the latter on the former.[10]

This growing empirical critique would benefit from a sharper theoretical focus. For while evidence on the role that communications technologies

play in accumulation and legitimation is growing, this evidence is not given theoretical coherence. In the absence of an alternative perspective, the developmentalist view maintains its theoretical dominance, its control over our way of seeing global communications, despite evidence that undermines it.

The *world system* view offers a substantial theoretical alternative.[11] This perspective focuses on the relationships among groups of societies that function as *core* or advanced capitalist, *periphery* or agricultural/extractive, and *semi-periphery* intermediary societies. The basic mechanism of the system is the process by which the core extracts surplus value from the periphery, thereby gaining from the maintenance of underdevelopment. Moreover, the core uses the semi-periphery as a source of surplus value and as a buffer to protect itself from the periphery. According to Wallerstein:

> The three structural positions in a world-economy—core, periphery, and semiperiphery—had become stabilized by about 1640. . . . The key fact is that given slightly different starting points, the interests of various local groups converged in northwest Europe, leading to the development of strong state mechanisms, and diverged sharply in the peripheral areas, leading to very weak ones. Once we get a difference in the strength of the state machineries, we get the operation of "unequal exchange" which is enforced by strong states on weak ones, by core states on peripheral areas. Thus capitalism involves not only appropriation of the surplus value by an owner from a laborer, but an appropriation of surplus of the whole world-economy by core areas. And this was as true in the stage of agricultural capitalism as it is in the stage of industrial capitalism.[12]

The world system perspective is useful for understanding the communications infrastructure that provides a basis for core capitalist accumulation and legitimation. Moreover, it shows how such an infrastructure helps create the conditions for crises within the world system. Three products of electronic and aerospace technology—the submarine cable, the earth-orbiting satellite, and the computer—are the backbone of the communications infrastructure.

The first transoceanic cable opened telegraph communication between Britain and the United States in 1865, a development that advanced both U.S. industrialism and Britain's most extensive period of imperialist expansion. Since that time the major capitalist core powers have built a global network of undersea cables that are helping to realize the centuries-long dream of world-power coordination. Not only does an undersea cable system facilitate cooperation and coordination among bankers and state officials in the core, it enhances their collective control over the periphery. For exam-

ple, cable links between the United States and Latin America have made it just about as easy for a New York businessman or a Pentagon general to stay in direct contact with Caracas or Rio de Janeiro as with any U.S. city. This contact broadened in 1956 when the first cable with the capacity to transmit voice as well as telegraph signals opened service between the United States and Europe. Today these communications highways, almost entirely built, owned, and operated by core powers, span the entire world and thereby make the systemic character of world capitalism more than ever a stark reality.

The development and rapid expansion of communications satellite systems, again almost entirely controlled by the core, enhance this reality. The largest such system, the U.S.-managed INTELSAT network, links over 100 countries or, more to the point, vital financial and military centers in these countries. The recent decision of the Peoples Republic of China to join the INTELSAT system is an important step in that country's incorporation into a wider world system.[13]

The computer has added rapid information *processing* to the global distribution capacity of undersea cable and satellite systems. This has made IBM, with over half of its revenues derived from foreign sales, a global power in its own right, and an instrument for the expansion of multinational enterprises whose primary product is something other than communications.[14] Tables 6–1 and 6–2 indicate the dominance of IBM among U.S. companies and in the European marketplace. Moreover, with 6 of the top 10 computer companies in Western Europe, U.S.-based companies exercise substantial influence over the information economies of these societies.

TABLE 6–1 Top ten U.S. data processing companies by annual revenues, 1979 and 1980.

1980 Rank	*Company*	*Revenues (In $ Millions)* *1979*	*1980*
1	IBM	18,338	21,367
2	NCR	2,528	2,840
3	Control Data	2,273	2,791
4	DEC	2,032	2,743
5	Sperry	2,270	2,552
6	Burroughs	2,442	2,478
7	Honeywell	1,453	1,634
8	Hewlett-Packard	1,147	1,577
9	Xerox	570	770
10	Memorex	658	686
	Total Top Ten	33,710	39,438
	Total U.S.	46,220	55,626
	IBM as a Percent of U.S. Total	39.7%	38.4%

Source: Datamation, June 1981, p. 92.

TABLE 6–2 Top ten data processing companies in Europe, 1980

1980 Rank	*Company*	*Headquarters*	*European DP Revenue 1980 (In $ Millions)*
1	IBM	U.S.	9,902
2	Siemens	W. Germany	1,505
3	Cii-Honeywell Bull	France	1,444
4	ICL	UK	1,300
5	Olivetti	Italy	876
6	Sperry Univac	U.S.	825
7	NCR	U.S.	810
8	Digital	U.S.	786
9	Control Data	U.S.	764
10	Burroughs	U.S.	734
	IBM as a Percent of European Top Ten: 52.2%		
	U.S. Companies as a percent of European Top Ten: 72.9%		

Source: Datamation, November 1981, p. 40.

Core communications companies have linked cable, satellite, and computer technologies to mass media advertising, newspapers, and radio and television broadcasting. As a result, communications technologies are more than the infrastructure of a vast accumulation process, but instruments of world-system legitimation as well.

Advertising companies, of which 27 of the top 30 are based in the United States, have spread around the world in the last two decades. Such companies not only accumulate capital themselves, but through legitimation enhance the global expansion of companies that deal in more prosaic products such as cars and washing machines. The process by which packaged infant formula and cigarettes enhance the profits of ad firms, Nestles, and Marlboro strengthens the periphery's dependence on the core.[15] Electronic media are a major instrument for making that dependency both economic and ideological.

The press is not typically seen as a vehicle for capital accumulation and legitimation. But in their control over the flow of world news, the four major wire services: Associated Press, United Press International, Reuters, and Agence France-Presse help to satisfy these functions. According to one study,

> AP feeds 17 million words a day to 10,000 subscribers with journalists in 110 countries with an estimated audience of 1 billion. UPI transmits 14 million words a day to 7,000 subscribers in 90 countries. Reuters distributes one and a half million words a day in six languages to subscribers in 155 countries. AFP journalists in 110 countries put out three million words a day to 12,000 subscribers.

Other studies report on how these leading news organizations filter their material and set the news agendas of media throughout the world. For example:

- An analysis of the coverage of three international crises in the 1960s by four Norwegian papers showed that 87% of the examined news items came from the same four agencies.
- Content analysis of leading newspapers in five countries (India, Kenya, Lebanon, Japan, and Norway) in monthly periods of 1961 and 1968 found that at least half of international news items come from AP, UPI, Reuters, and AFP, not including "Big Four" reports which had been filtered through the national news agencies.
- A study of Third World news coverage of 14 Asian newspapers in 1977 found that a little over three quarters of all non local Third World news came from the "Big Four."
- A study of reciprocal coverage of the US and Canada showed that the world agencies accounted for over 70% of U.S. news in Canadian newspapers and over 80% of Canadian news in U.S. newspapers.[16]

For years these services have radiated out from the urban centers of the core powers, maintaining a one-way flow of information to the rest of the world. As a result we find most news written about black Africa coming from various bureaus in South Africa.

Magazine, film, and of course, radio and television companies have developed similar networks. Conglomerates like Reader's Digest, Time-Life, and Post-Newsweek publish their respective magazines in several foreign language editions. The U.S. film industry takes advantage of the obscure Webb-Pomerene Act to gain antitrust exemptions for explicit multiple corporation export operations to become the single largest source of films outside the United States and earn half of all U.S. film revenues from exports.[17] Radio broadcasting, particularly on short wave, is an important source of information in periphery countries. Here government organs like the U.S. Voice of America and Britain's BBC as well as Radio Moscow dominate the air. In television, what is fast becoming synonomous with mass media, the core is the major program exporter. By taking advantage of an important characteristic of media products (the ease of duplication after initial production), core producers, mainly the major networks ABC, NBC, and CBS, undermine indigenous program producers by dumping their products, typically oft-rerun series, at well under core market prices.[18]

Core control over periphery mass media has received the most research and popular attention. But according to business research organizations, the major push in the coming years will be in core penetration of

pheriphery telecommunications markets. According to the noted think-tank Arthur D. Little, Inc., multinational corporations will be in a good position to exploit these markets:

> By 1990 world markets for telecommunications equipment will exceed $87 billion/year and will be far from saturated especially in developing areas. While world telecommunications equipment markets will grow 8–9%/year in real terms through 1990, markets in developing (nonindustrial) countries will show particularly strong growth, averaging 10–11% in some areas. Companies best positioned to compete in these markets are large multinational companies that offer comprehensive arrays of communications equipment, particularly switching equipment, and that also have access to sources for the necessary funding.[19]

According to Table 6–3, growth rates in the periphery are expected to outstrip those in core societies, with those in Asia leading the world.

TABLE 6–3 Markets for telecommunications equipment, 1980–1990.

	Shipments in $ Billions of 1/79 Dollars			*Growth (%/year)*	
Region	*1980*	*1985*	*1990*	*1980–85*	*1985–90*
N. America	16.9	24.8	35.5	8.0	7
Europe	10.7	15.3	20.5	7.4	6
Asia	10.0	16.7	26.8	10.8	10
Latin America	1.2	1.8	2.4	9.3	6
Oceania	0.8	1.0	1.4	6.7	7
Africa	0.4	0.6	0.8	7.6	8
Total	40.0	60.2	87.5	8.5	8

Source: Alan B. Kamman, *The Basis of Competition in Third-World Telecommunications Markets.* Cambridge, MA: Arthur D. Little, 1980, p. 3.

ADL is particularly positive about the development of telecommunications networks in the Third World because of the "large surpluses of unskilled labor" that these countries have to use in building such networks.[20] The next section considers the significance of this point. What does the new global division of labor have to do with Miss Free Trade Zone?

The World System and the Global Division of Labor

> One can easily imagine by the turn of the century people will be working with data bases from one country, programs located in another country, and labor intensive operations in a third place, all on-line

> simultaneously, without moving people or tapes or anything other than moving bits electronically.[21]

Ithiel Pool's vision is actually a revision of the developmentalist fantasy. In the 1950s and 60s the fantasy was that Western technology and professional assistance would eventually boost the developing world up to the level of industrialized nations. Wilbur Schramm's *Mass Media and National Development* urges the periphery to push ahead with a full-scale mass media system, including not only newspapers and radio, but movie theaters and television as well. Two cinema seats and two television receivers per 100 population represented a minimum acceptable level of development.[22] But the 1980s bring limits to everyone, particularly the developing world. Consequently, periphery societies are urged to recognize that they cannot be like core nations. They ought to follow the lead of countries like Taiwan and South Korea that take comparative advantage of their low labor costs. According to Pool:

> There is every reason to believe that many places will find that they have a comparative advantage in various aspects of information processing, simply because of their lower labor costs. Taiwan and Korea, for example, are becoming centers for software coding.
>
> That kind of division of labor depends, of course, upon having access to the technology of global telecommunication. The networks for such international access already exist if national policy permits it.[23]

The last line is most important. Developing nations can only take advantage of their place in the world if they open their doors completely to communications technologies, networks, and the transnational corporations that promote them. Trade restrictions such as tariffs, privacy laws, and the like will only restrict development for everyone. Developing nations, which have the greatest need, will suffer the most.

The similarity between the old and the new, the vision and revision of the developmentalist view is that each blithely ignores the danger of dependency contained within each. The old view encourages dependency on Western communications technologies, programs, techniques, etc. The second, Pool's view, encourages dependency on the investment plans of Western corporations, their terms of trade, their wage pressures, etc. It is not as if periphery nations choose to take advantage of low labor costs that a magic wave of the Invisible Hand makes possible. Transnational corporations pressure local elites to enforce the lowest possible wages. These elites accomplish this by banning trade unions, jailing opposition, and leaving the local populace with no other alternative but to take advantage of their low labor costs. All of this is cleansed with the ideology of *comparative advantage*.

As a result, the new global information infrastructure is organized in an international division of labor that enriches core transnational corporations and maintains the dependency of periphery and semi-periphery societies. Consider how this international division of labor applies to videotex.

At the pinnacle of the system are core nations that provide the base and governmental support for transnational corporations. The U.S., Japan, and Western Europe are the bases for research and development, as well as the overall management of global communications systems. The first transnational videotex system, Prestel International, fulfills expectations about core dominance over the global expansion of such systems. Market trials were carried out in six core societies: the US., U.K., West Germany, Sweden, Holland, and Australia. Information providers were themselves typically core transnationals with a decided interest in economic news. These included Lloyds of London Press, The Economist, Baric, and Dow Jones. Furthermore, 30 different corporations, most of which are transnationals subscribed to the trial service. Among the subscribers were Chase Manhattan Bank, Manufacturers Hanover Trust, ICI, Rank Xerox, and Trust House Forte.

The fully commercial Prestel International service began in mid-1981. The original trial participants were joined by Hong Kong, a British colony, for the initial network. Again, the emphasis is on business information. A global capitalist information order must be based on the ability to pay. According to the Data Base Manager for Prestel International:

> For all participants in a videotex venture—operators, IPs, and users—to benefit from the service, the data base must be saleable. Clearly it is only when videotex is a cost effective information system that the installed base of users grows and the population reaches the magnitude needed to create profit for the investors.
>
> The question of business or domestic market is also settled by a consideration of economics. International videotex services bear heavier costs than those of domestic services, and thus the user charges look high to the domestic user. Clearly Prestel International will be aimed at the business sector, which is prepared to pay international videotex rates for high value information.[24]

Core societies also provide the base for information systems management. In the case of Prestel International, the British software company Logica manages the system and two computer centers in the network process information for users. These are located in London and Boston.

While Prestel is the only videotex service to link users in different parts of the world, other videotex developers such as the French Antiope/Teletel and the Canadian Telidon organizations are busy marketing their services

throughout the world.[25] Furthermore, systems comparable to videotex are already linking core centers. These include the SWIFT banking and the AIRINC airline networks, as well as military systems that fan out from the Pentagon. Furthermore, IBM's SBS and Xerox X-TEN are domestic business computer/communications networks that are expected to form major strands in the global web. The likely product of such networks is a service like IRIS, International Reporting Information Systems. For a minimum fee of $25,000 a year IRIS provides on-line news and analysis updated daily by a global network of 96 economic and political correspondents and a headquarters staff of country specialists and analysis. According to one reporter, IRIS

> has already trumpeted its computer-based services on two continents and quickly caught the attention of some of the largest multinational corporations.
>
> Widely described as a private-sector Central Intelligence Agency, IRIS is backed by several large international financial institutions and counts among its board of advisors former British Prime Minister Edward Heath, former World Bank President Robert McNamara and Jean-Francois Deniau, a former minister of trade and commissioner of the European Community.
>
> Most important of all, according to IRIS officials, the company is founded on the type of computer systems the CIA would like to have someday.[26]

Built on the Backs of Periphery People

The core is the site for research, development, management, and profit. The periphery is the site of production. More specifically, production of solid state electronic components, the brains of information technologies such as videotex, has shifted to periphery societies, principally East Asia. Eight-one percent of the labor intensive assembly process, the bonding of microscopic gold threads to semiconductor chips, for U.S. firms is done outside the United States.[27]

The major reason why semiconductor companies operate assembly plants in the periphery is to save on labor costs. Wage rates for operative workers in the periphery average about one tenth or less of U.S. wages. In 1979 the average *monthly* wage in Indonesia was $29.95 (U.S.) and in the Philippines $75.00 (U.S.). But wages are not the only consideration in the selection of a labor force. A *disciplined* work force is a prime consideration. Chip manufacturers have closed plants in countries where labor unrest threatened production. For example, in the 1970s Texas Instruments closed

its Curacao plant, and other companies in Mexico followed suit after labor militancy. National Semiconductor's Thai plant was shut down by a strike in 1976, but reopened after a military coup forbade such strikes. The Malaysian government has outlawed electronic workers' unions, warning, not inaccurately, that unionization might force producers to leave the country. In 1981, workers at a German-owned factory in Penang, Malaysia were denied the right to join the Electrical Industry Workers Union. This came after workers who earn about $3.00 (U.S.) per day struck a number of plants in Malaysia. Management refused to bargain, called in the riot police, and fired all the strikers.[28] As a Pacific Studies Center report puts it:

> Throughout Asia semiconductor firms flourish in lands where military and other authoritarian regimes keep a tight hand on the labor movement and labor laws are weak.[29]

About 90% of the 300,000 assembly workers in East Asia are women. In addition to low wages, they work under hazardous conditions. This is how one analyst describes the scene in a Penang, Malaysia plant owned by INTEL, a U.S.-based world leader in microelectronics:

> After three or four years of peering through a microscope, a worker's vision begins to permanently blur, so that she can no longer meet the production quota. Virtually anyone who stays on the job for three or more years must eventually wear glasses. The unspoken expectation of the company is that the worker will marry and "retire" when poor eyesight makes her unfit to work. If she does not retire, she will be laid off.
>
> Caustic chemicals, all toxic and some believed carcinogenic, sit in open containers beside many workers, releasing the fumes that so assault first-time visitors to the plant. They include trichloroethylene (TCE), xylene and methyl ethyl ketone (MEK), all particularly dangerous acids and solvents used extensively throughout the production process. Workers who must dip components in acids and rub them with solvents frequently experience serious burns, dizziness and nausea. TCE, widely used to "degrease" parts, is a particular cause for concern. Classified as a cancer-causing substance by the U.S. National Cancer Institute in 1978, TCE's detrimental long-term effects represent only a part of the problem. The solvent, now being phased out of use in the U.S., often induces lapses in judgment and motor coordination, which when combined with the high speed work processes the companies' demand, makes workers prone to serious accidents due to chemical spills.[30]

In Hong Kong, most electrical workers over 25 years old are called "Grandma" because they wear glasses. A South Korean study conducted by an international church group in 1975 concluded that nearly half of the women who work at the microscopes are nearsighted and 19% suffer from astigmatism. At one time or another most workers contract conjuctivitis, a painful and contagious eye ailment.[31]

Worker productivity is closely monitored by ever-present supervisors who do not hesistate to display production charts in the work area. Workers who fail to meet quotas or repeat mistakes are fired. Since most supervisors are male, it is not uncommon for assemblers to encounter sexual harassment as a condition for getting and keeping a job. Careful coordination of employee records allows companies to screen out workers who have quit or been fired by another company, even in another East Asian country.[32]

In addition to the discipline of low wages and authoritarian control, companies use human relations gimickry to create a spirit of loyalty among workers. Along with the usual picnics, dances, and company-sponsored cosmetics classes, some firms have workers wear T-shirts or entire uniforms that advertise the employer. In Penang, U.S.-owned firms jointly run a beauty pageant that names an annual Miss Free Trade Zone.[33]

Authoritarian regimes in periphery societies openly court U.S. and other manufacturers by visiting plants in California's Silicon Valley and by advertising in such places as the *Wall Street Journal* and *Electronics News*. One such ad placed by Sri Lanka boasts that its workers earn less than any of its East Asian competitors (less than 20¢ (U.S.) per hour as compared to slightly more than 60¢ (U.S.) in Malaysia). In bold type, the ad promises "100% tax exemptions for American business for up to ten years."[34] Not to be outdone, the Malaysian government informs multinational executives:

> The manual dexterity of the Oriental female is famous the world over. Her hands are small, and she works fast with extreme care. . . . Who, therefore, could be better qualified by nature and inheritance, to contribute to the efficiency of a bench-assembly production line than the Oriental girl?[35]

Between core and periphery are semi-periphery societies, the increasingly important buffers in the global information order. Two such buffer societies are Singapore and Hong Kong, whose workers are employed in more skilled assembly testing jobs and earn more than those working in the unskilled so-called "jelly bean" assembly plants in the Philippines and Indonesia. Fairchild Semiconductor, a division of the multinational Schlumberger, recently moved its unskilled assembly plants from Singapore to Indonesia. The firm established facilities in Singapore to test and warehouse components assembled in Indonesia and the Philippines. Semi-periphery

societies are especially important trade hubs for core transnationals. Hong Kong, the only nonindustrial base for Prestel International, and Singapore have among the most reliable local and international telecommunications links in East Asia. These countries also boast the most Export Processing Zones, essentially free trade areas that offer transnationals excellent infrastructures and very liberal trade and tax rules.[36]

This international division of labor reaches its most extreme form of rationalization when the core-periphery-semi-periphery system is contained within a single transnational corporation. Jacobson summarizes how this operates at a leader among such companies, IBM:

> Component manufacturing is carried out in Asian nations where limited skills and low wages go hand in hand; more complex assembly operations take place in advanced developing nations and developed nations where skills and wages are higher; and the most expensive IBM activities, exploratory and applied research and development, are confined to North American and exceptional Western European locations.[37]

Basic assembly in Indonesia; more advanced assembly and testing in Singapore or in factories and in the "electronic cottage industry" of the U.S. West Coast; research, development, marketing, and management at the headquarters in the core.[38] This is the basic pattern for the production and distribution of electronic technologies such as videotex. Along the way, finished products are used in the production process itself. A Filipino assembly subcontractor uses microelectronic systems to monitor every machine and employee every 20 minutes for chip companies like Zilog, an Exxon subsidiary.[39] Further along the way, computer/communications systems help management to coordinate and plan future activities. Finally, the company markets such products as videotex devices that find their way into newly automated offices, factories, and homes.

The result is a growing gap at the levels of production, distribution, and consumption of information between an elite group of core nations, led by their transnational corporations, and the vast number of periphery and semi-periphery societies, only whose compradores share in the blessings of the information society. Prestel, Antiope, Captains, QUBE, Telidon, Bildschirmtext, and other videotex systems are very basic versions of what core societies are moving toward—global networks that heighten existing inequalities. As Anthony Smith puts it:

> It is bad enough to have an appalling telephone network in a world where wealthy countries have good, sufficient and well-maintained telephone circuits. It would be much worse to undertake the task of

> economic development in a world in which the major manufacturing powers supplement physical energy with sophisticated information systems which constantly enhance the disparities between themselves and the less developed societies. The deprived society would recede further and further into the status of object rather than subject. It would be more helplessly locked inside the spiral of low-information generation than today. Its elite would be drawn into the appreciation of the developed world's high-level provision, causing further disfiguration of the former society's patterns of entertainment, education, social status and reward. The divisions between the information-rich and the information-poor—internationally and nationally—could become almost inexorable, far harder to overcome than the divisions founded upon economic exploitation.[40]

Some Trouble in Paradise

The world system is not without its contradictions. There is opposition to the smooth functioning of the global electronic order and there are efforts to build alternatives.

Consider first the semi-periphery, those countries that do not accumulate near the level of core societies, but which are not as poor nor as dependent as the periphery. Among these are socialist societies such as the Soviet Union, China, and Cuba. These countries are dependent on the core-dominated world system, but are more *in* it than *of* it. In other words, their presence in the system is tenuous, challenges are always possible, though threats to the essential structure of the system are not substantial. Cuba represents enough of a threat to prompt the Reagan Administration to create a multi-million dollar radio propaganda organ, "Radio Marti" or "Radio Free Cube."[41] Moreover Reagan's information ministers have pointed to the shallowness of their own "free flow" policy by banning imports into the U.S. of newspapers and magazines produced in Cuba. Such actions are evidence that Cuba represents a perceived threat to core powers. Nevertheless, no socialist society possesses anything approximating the telecommunications networks that core states and transnationals use to access and generally control the flows of information and data worldwide.

Earlier, we discussed the growth of Singapore and Hong Kong into semi-periphery societies that are vital electronic trade and communications intermediaries between core and periphery. Like these, such countries as Mexico and Brazil in Latin America, Italy in Europe, and Nigeria in Africa are taking on new roles in international communications. Under the clear imperial rule of Britain and subsequently the United States, communications flowed almost entirely from core to periphery. Today such semi-peripheral

societies have become regional controllers or intermediaries in the flow of information from the core. Thus, Mexico becomes a major news exporter, Italy the same for films. This development has confused certain analysts into seeing an end to cultural imperialism.[42] But, in fact, semi-periphery countries get most of their communications resources from the core or, at least, model their systems after core media and telecommunications. This represents a change, but certainly not the demise of the world capitalist information order. This change is largely twofold. For one, it enhances the role of the core which can now dominate the world without directly appearing to do so. But this advantageous change has its price. For while core countries such as the United States gain a cover, in that Latin America can shift blame from the United States to Mexico and Brazil for its cultural products, nevertheless, the United States must now depend on the semi-periphery to ensure that such products reflect core interests. The need for national armies, using the latest in telecommunications technology to repress popular opposition and the existence of labor unrest in East Asia, show that core interests are not easily maintained. The price of co-optation is the constant ambiguity, varying from situation to situation, about just who is being co-opted.

The growth of the semi-periphery as a trading hub and as a second step exporter of information resources grows in importance as periphery societies take action to assert their cultural sovereignty. The positions of semi-periphery societies such as Mexico and Yugoslavia grow in significance as Latin American, Asian, and African societies try to control their own press, film, and broadcasting resources, as well as vital telecommunications links that strengthen the core's ability to extract surplus value from the periphery. Societies outside the core are using their numerical, if not economic, advantage in such traditionally core capitalist-dominated international fora as the International Telecommunications Union and UNESCO at the United Nations to at least voice a call for a New World Information Order to strengthen their effort to build a New Economic Order. The UNESCO-sponsored McBride Commission Report, though weak on remedies, reflects the growing criticism of societies outside the core to the global dominance of transnational corporations:

> . . . in the communications industry there is a relatively small number of predominant corporations which integrate all aspects of production and distribution, which are based in the leading developed countries and which have become transnational in their operations. Concentration of resources and infrastructures is not only a growing trend, but also a worrying phenomenon which may adversely affect the freedom and democratization of communication. . . . Public awareness of the structures of ownership is a necessary starting-point. But we are inclined to draw two conclusions for communication policies in de-

veloped and developing countries to help safeguard internal democracy and strengthen national independence; one, that some restrictions on the process of resource concentration may be in the public interest; second, that some norms, guidelines or codes of conduct for transnational corporations might well be developed to help ensure their operations do not neglect or are not detrimental to the national objectives and socio-cultural values of host countries.[43]

Perhaps the most important struggle is not one taking place between sectors, but within the core itself. The competition among national videotex systems over standards, services, and markets is part of a wider struggle over who will dominate the global electronic information order. Can core powers reach an accommodation or will conflicts among the U.S., European, and Japanese interests disrupt the system's relative harmony?

One major manifestation of this struggle is the conflict between private and public telecommunications network interests. Core networks have traditionally been subject to the control (Europe) or regulation (North America) of government and quasi-government bodies. In Europe these Post, Telegraph, and Telecommunications (PTT) agencies are the primary (in some cases the only) authority on electronic communications operations and policy. They are responsible for giving birth to national videotex services in Britain and France. The PTTs are certainly well integrated into the network of core capital. They are closely linked to private banks, private electronic corporations, and the wider military-industrial complex. Nevertheless, the PTTs have offered a greater level of responsiveness to broader public needs for planning and low-cost public services than could an individual private profit-oriented company. As the sole telecommunications entity with policy authority in a country, a PTT can coordinate facilities planning and services. Furthermore, PTTs can use revenues generated by lucrative business telecommunications services to subsidize basic postal and local telephone exchange rates.

The growing significance of international communications for transnational companies has led to growing attacks on the public networks and the proliferation of private, business-oriented systems such as SWIFT and SBS. For example, according to a multinational corporate trade publication, such major projects as automating office work are impeded by the PTTs. The publication calls on private systems to challenge this "major barrier to change."[44]

The struggle between private and public networks for control over regional and global links means more than growing revenues in an industry expanding at a 20% annual rate. It means the future of low-cost postal and phone service for individual consumers. It means the type of service that national, regional and international videotex systems will provide. It means

whether access to such networks will be defined as a public right or as a good to be purchased at whatever market rate prevails.

The British Prestel service represents a victory for private interests. Prestel could have remained a public division of its originator, the British Post Office. Instead, as is more typically the case in the United States, public research and development funds gave birth to a private company, British Telecom, whose service is geared to business users who can afford expensive equipment, subscription, and access charges. According to *The Economist*, British Telecom is the product of the Thatcher government's version of deregulation, a policy not dissimilar to the U.S. government effort to privatize telecommunications. In fact, *The Economist* views BT as an even greater danger to Britain for

> . . . it has retained far more monopoly power than AT&T has. It has the right to supply the first telephone on premises. It can raise its rates on its own volition. It can invest in expensive new services like Prestel whether or not the public wants them . . .
>
> British Telecom is policed not by an experienced regulatory agency like the FCC but by the department of industry in which there are now factions so giddy with the excitement of monopoly-breaking that they can hardly see what the monopoly is getting up to while they try their hand at the game.[45]

Nevertheless, *Multinational Business* feels that BT "should facilitate a more rapid introduction of new office equipment."[46]

Not all core governments are supporting the complete dominance of privately-controlled communications networks. A number of European nations, including France, Germany, Austria, Luxembourg, Denmark, Swden, and Norway, as well as Australia, Japan, and Canada have enacted privacy and data protection laws. These laws include restrictions on transborder data flows covering both personal and general data. A dozen other countries are considering similar statutes.

Moreover, in what Becker refers to as a "horizontal cooperation" movement, similar to the Non-Aligned Nation News Pool, the European data network, EURONET DIANE, is challenging the control of private, principally U.S. systems. Implemented at the end of 1979 and financed by government funds provided by the European Community, according to Becker:

> EURONET DIANE is intended not only to reduce the dependence of European users on the US suppliers of information; with its public subsidies and thus cheaper access fees for European users, it also objectively represents opposition to the purely commercially run and expensive access fees charged by the US data banks.[47]

Ironically, that strong opponent of such efforts, Michael Blumenthal, provides ample reasons for them. The Chairman of Burroughs begins with the economic:

> In 1974 the total number of computer systems in use was something over a quarter-million. There are about two million systems currently in use; and by 1984 that figure should rise to more than seven million. The total value of installed computer bases was $58 billion in 1974; it is currently about $140 billion and by 1984 is expected to reach almost a quarter trillion dollars.[48]

Second, the bundale variously referred to as control, privacy, and national sovereignty:

> . . . 56 percent of the large data bases for information services networks are located in the U.S., and these bases account for 80 percent of worldwide transmission and processing. Furthermore, the majority of official or governmental information relating to Western European countries is held in U.S. data banks.[49]

The conflicts among core powers over the privatization of information resources, the uses of telecommunications, and the control over increasingly lucrative markets in the periphery and semi-periphery may turn out to be the most substantial source of instability in the global information system. Chapter Seven considers the possibility that such conflicts can spawn alternatives to the established system.

Footnotes

[1]Merrill Brown, "Senators Decide to Curb AT&T Electronic Ads," *Washington Post*, July 11, 1981.

[2]For a concise summary of this criticism from the then President of ANPA and the Gannett Corporation, the largest newspaper chain in the U.S., see Allen H. Neuharth, "Threat to Media Freedom," in *Future of the Free Press*, New York: New World Communications, Inc., 1979, pp. 93–97.

[3]Herbert I. Schiller, *Communication and Cultural Domination*, White Plains, NY: Sharpe, 1976); Armand Mattelart, *Multinational Corporations and the Control of Culture* (translated by Michael Chanan), Sussex: Harvester, 1979; Anthony Smith, *The Geopolitics of Information: How Western Culture Dominates the World*, New York: Oxford, 1980; and Jeremy Tunstall, *The Media are American*, New York: Columbia University Press, 1977.

[4]Schiller, *Communication and Cultural Domination*, op. cit., pp. 24–45.

[5]Vincent Mosco, *Broadcasting in the United States*, Norwood, NJ: Ablex, 1979. The latest successful effort to block domestic information flows came when the broadcasting industry convinced the Federal Communications Commission to drop its plan to increase the number of

radio stations broadcasting over AM. This effort to spur competition and diversity was to be accomplished by shortening the frequency separation between stations from ten to nine KHz. The nations of Africa, Europe, the Middle East, and Asia have already reduced their AM channel separat on requirements from ten to nine. See "Ratio Session Votes to Keep Current Frequencies for AM," *New York Times*, November 14, 1981.

[6]Tunstall, op. cit., p. 208. Major works of these defenders of the developmentalist perspective include Daniel Lerner, *The Passing of Traditional Society*, Glencoe, NY: The Free Press, 1958; Ithiel de Sola Pool, *Communications, Computers, and Automation for Development*, New York: United Nations Institute for Training and Development, 1971; and Wilbur Schramm, *Mass Media and National Development*, Stanford, CA: Stanford University Press, 1964.

[7]W. Michael Blumenthal, "Transborder Data Flow and the New Protectionism: A Comprehensive National Communication and Information Policy," *Vital Speeches of the Day*, May 6, 1981, p. 550.

[8]*Ibid.*, p. 551.

[9]*Ibid.*

[10]Reference #3.

[11]The leading work here is Samir Amin, *Accumulation on a World Scale*, New York: Monthly Review, 1974; and Immanuel Wallerstein, *The Capitalist World Economy*, Cambridge: Cambridge University Press, 1979.

[12]Wallerstein, op. cit., pp. 18–19.

[13]Perhaps an even more powerful indicator of China's incorporation is the following newspaper account on Chinese "compradors." The photo preceding the story pictures two business-suited Chinese men and bears the caption: "Want to do business in China? Try going through "compradors."

> *Go-betweens needed to deal with China*
>
> American companies seeking business with China would do well to find themselves a good comprador. . . .
>
> More serious use of compradors is related to this fact: their business is knowing what the Chinese state enterprises have to sell. These businesses are run by the provinces—most do not know what their neighbors are selling. The provincial firms are in a desperate competition to earn foreign exchange. So, they will undercut their neighbors whenever the opportunity presents itself.
>
> Some compradors are the conduit through which consumer electronic goods, sunglasses, and medicinal herbs are smuggled into China. They also pay off Chinese provincial officials with illegally imported cars and other "gifts."
>
> Reported in the *Philadelphia Inquirer*, June 15, 1981.

[14]For a good discussion of the political implications of IBM's transnational expansion see Robert E. Jacobson, "Satellite Business Systems and the Concept of the Dispersed Enterprise: An End to National Sovereignty?," *Media Culture and Society*, *I* (3), pp. 235–253.

[15]For evidence on how this operates see Fred Fejes, "The Growth of Multinational Advertising Agencies in Latin America," *Journal of Communication*, 1980, *XXX* (4), pp. 36–49.

[16]The general figures are from *Content*, May 1979, (96), p. 9. The specific studies are quoted from Oliver Boyd-Barrett, *The International News Agencies*, Beverly Hills, CA: Sage, 1980, pp. 15–16.

[17]Thomas H. Guback, "International Circulation of Theatrical Motion Pictures and Television Programming." Paper presented at the Annenberg School of Communications, Conference on World Communications, Philadelphia, PA., May 1980.

[18]For data on the variability of prices for films on the world market see Tunstall, op. cit. pp. 299–303.

[19]Alan B. Kamman, *The Basis of Competition in Third-World Telecommunications Markets*, Cambridge, MA: Arthur D. Little, 1980.

[20]*Ibid.*, p. 10.

[21]Ithiel de Sola Pool, "International Aspects of Telecommunications Policy," in Mitchell L. Moss (Ed.), *Telecommunications and Productivity*, Reading, MA: Addison-Wesley, 1981, p. 164.

[22]For a discussion of the impact of Schramm's work see Tunstall, op. cit., pp. 208–214.

[23]Pool, op. cit., p. 164.

[24]W. J. Hughes, "Data Base Planning for Videotex," *Videotex '81*, Northwood Hills, UK: Online Conferences Ltd., 1981, p. 422.

[25]On French marketing plans see Interview with Roy N. Bright, Managing Director of Intelmatique, *Camputerworld*, December 7, 1981. On Canada's successful effort to market Telidon in Venezuela see Hector Martinez, "The Orientation and Information System," *Videotex '81*, op. cit., pp. 123–129. For a brief report on the policy and legal ramifications of international videotex services see "International Viewdata Services Face Policy and Legal Issues," *Transnational Data Report*, June 1980, *III* (2), pp. 3–5.

[26]Jake Kirchner, "Reporting Service for Multinationals Planned: Described as Private-Sector CIA," *Computerworld*, December 7, 1981, p. 11.

[27]Lenny Siegal, *Delicate Bonds: The Global Semiconductor Industry*, (Mountain View, CA: Pacific Studies Center, 1980, p. 8.

[28]Pacific Studies Center, *Global Electronics Information Newsletter*, May 1981, (10), p. 3.

[29]Siegal, *Delicate Bonds*, op. cit., p. 11.

[30]Rachel Grossman, "Bitter Wages: Women in East Asia's Semiconductor Plants," *Multinational Monitor*, March 1980, p. 9.

[31]*Ibid.*

[32]Siegal, *Delicate Bonds*, op. cit., p. 14. On sexual harassment in the semiconductor plants see Barbara Ehrenreich and Annette Fuentes, "Life on the Global Assembly Line," *Ms.*, January 1981, pp. 53–59 and 71.

[33]Siegal, *Delicate Bonds*, op. cit., p. 14.

[34]*Ibid.*, p. 11.

[35]Ehrenreich and Fuentes, op. cit., p. 58.

[36]Siegal, "Delicate Bonds, op. cit., pp. 11–12 and James E. Shapiro, "Taiwan: Where the EPZs are Called 'Utopia' for Business—and 55,000 Young Women Risk Their Health for 70 Cents an Hour," *Multinational Monitor*, June 1981, pp. 11–20.

[37]Jacobson, "Satellite Business Systems . . . ," op. cit., p. 237.

[38]Schiller presents data that point to the integration of semiconductor companies into the leading transnationals of the core. As he puts it:

> However the world market for semiconductors may be redivided in the years ahead, one development is assured. The small-scale, independent manufacturer will be gone and the integrated circuit industry will be absorbed into some subdivisions of a few transnational corporations. One of the early innovators in the industry predicted this and claimed that "in the 1980s there may be only about ten firms worldwide that remain as major suppliers of microcircuits."

According to Schiller, Texas Instruments and IBM each already control 10% of the world's market for microchips.

Herbert I. Schiller, *Who Knows?: Information in the Age of the Fortune 500.* Norwood, NJ: Ablex, 1981, p. 33.

[39]Pacific Studies Center, *Global Electronics Information Newsletter,* September 1981, (14), p. 3.

[40]Anthony Smith, *The Geopolitics of Information*, op. cit., p. 113.

[41]See Chapter Two, footnote 62.

[42]This is particularly the case in Tunstall's *The Media are American* wherein the author questions the cultural imperialism notion based on the rise of regional powers. Op. Cit., pp. 38–63.

[43]International Commission for the Study of Communication Problems, *Many Voices, One World,* New York: Unipub, 1980, p. 111. The Commission lists 15 transnational corporations that dominate the production and distribution of international communications. Data on the companies are taken from Cees Hamelink, *The Corporate Village*, Rome: IDOC, 1977. The companies are ranked according to annual sales:

1. IBM (U.S.)
2. General Electric (U.S.)
3. ITT (U.S.)
4. Philips (Netherlands)
5. Siemens (Federal Republic of Germany)
6. Western Electric (U.S.)
7. GTE (U.S.)
8. Westinghouse (U.S.)
9. AEG-Telefunken (Federal Republic of Germany)
10. North American Rockwell (U.S.)
11. RCA (U.S.)
12. Matsushita (Japan)
13. LTV (U.S.)
14. Xerox (U.S.)
15. CGE (France)

Many Voices, One World, p. 109.

For an excellent analysis of the report, see Cees Hamelink (Ed.), *Communication in the Eighties: A Reader on the 'McBride Report,'* Rome: IDOC International, 1980.

[44]Judith M. Forester, "Multinational Businesses and the Office of the Future: An Opportunity or a Threat?," *Multinational Business*, 1980, (3), p. 27.

[45]"Don't Cry for BT," *The Economist*, August 22, 1981, p. 16.

[46]Judith Forester, "Multinational Businesses . . . ," op. cit.

[47]Jorg Becker, "Euro-American Conflicts in the Sphere of Transborder Data Flow." Paper presented at the Annual Conference on Culture and Communication, Temple University, Philadelphia, April 9–11, 1981, pp. 12–13.

[48]W. Michael Blumenthal, "Transborder Data Flow and the New Protectionism . . . , op. cit., p. 550.

[49]*Ibid.*, p. 552.

7

In Conclusion: Green Shoots?

> Indeed it has begun, and if we will but open our eyes we can see the green grass sprouting through the concrete. This is the promise of the coming Dark Age.[1]

In his book *The Promise of the Coming Dark Age*, the historian L. S. Stavrianos compares the current age of economic imperialism, ecological degradation, rigid bureaucracy, and religious mysticism with the Roman Empire. He claims that these characteristics will lead contemporary capitalism, just as they did the Roman Empire, into a dark age of social instability. But within this widespread instability, Stavrianos finds the seeds of a new era, the green shoots growing through the depressing concrete landscape. He concludes that these shoots will eventually uproot the concrete and lead the way to an era of widespread popular control over institutional life. I am not so sure. The forces of transnational capital and military exterminism are so potent that it is difficult to envision Stavrianos' promise.[2]

This book has examined these potent forces, the fantasies used to justify their continued dominance, and perspectives that challenge both fantasies and domination. Chapter Two took up the electronic power structure and its accompanying pluralist fantasy. This power structure is comprised of large corporations linked to foundations, universities, policy plan-

ning groups, and government bodies. It is an elite network that seeks to harmonize the interests of capital and filter out challenges to its hegemony. Moreover, this chapter underscored the significance of decisions made by the communications power structure. Communications has made it to "center stage," as the Chairman of the Board of Burroughs put it, vital for capital accumulation, legitimation, and repression. The pluralist fantasy suggests a considerably wider distribution of power, with government the important arbiter for the many conflicting interest groups represented. Instrumental and structuralist views offer a critical revision that more closely approximates the powerful reality. Chapter Four showed how this power structure works its way in the home. Communications technologies help to create the profitable audience commodity, making the connection between home and factory more transparent than ever. Videotex strengthens this connection by extending the ability of companies to measure audiences, market them, and involve them deeply in the process of their own commercialization. The audience sphere puts to rest fantasies about the modern mass society by overturning its optimistic view and deepening the aristocratic critique.

Chapter Five considered the fantasy of the post-industrial information society. It critiqued the vision of a capitalist service society run by knowledge workers committed to advancing rich human relations. It did so by presenting evidence on how information technologies such as videotex are used to further the widespread degradation of labor and a tighter concentration of power. Chapter Six examined the global expansion of the electronic power structure. In doing so, it questioned the leading developmentalist perspective which suggests that the introduction of advanced information technologies and the participation of Third World peoples in the new global division of labor will advance modernization. A world system perspective challenges this view and suggests how the use of information technologies deepens the dependency of periphery societies on the core-controlled global political economy. The role of videotex and information technology in this process is underscored by the way such systems are used to meet the needs of transnational corporations for rapid, private communications and for profits that a deeply oppressed low-wage population in the periphery helps to generate.

The result of these processes is a growing imbalance in the distribution of information resources. A decreasing number of large organizations control the production and distribution of information. The gap between the information rich and poor grows and thereby contributes to global power divisions. But these processes are not without their contradictions—cracks in Stavrianos' concrete landscape that create room for shoots to grow. The state, the home, the workplace, and the global system are all sites for these contradictions. The electronic power structure contains conflicting forces comprising established producers of information resources, new producers,

and transnational users who seek to shape the state into various molds that reflect their specific needs. These conflicts are embodied in state agencies allied with different capitalist interests as well as the different functions of capital accumulation and legitimation. Such conflicts do not question the nature of the state, capitalist, but do make it far more difficult for the state to temper and harmonize the short-run interests of specific sectors of capital and thereby advance the long-run interests of the capitalist system. Moreover, the power structure cannot realize its broad interests automatically in the home, factory, and office. The system depends on the labor of audience, factory, and office workers to produce value. The videotex infomercial requires the interactive assent of the audience. Silicon Valley requires the labor of assembly workers. Newspapers depend on the assent of reporters to the introduction of video display terminals and word processors. Each sphere requires the obedient acquiescence of labor, though in each, labor has different degrees of freedom. These range from the work or starve choice of the microchip worker to the audience laborer who risks the loss of important information and perhaps some family harmony by turning off the set. But the important distinction that under capitalism the owner buys not the *laborer* but *labor power* opens the way for workers—in audiences, factories, and offices—to withhold that power and thereby upset the system. By extension, the global system is subject to conflicts and contradictions. Foremost among these are struggles among regional sectors of core capital, of which videotex standards and services are a part, for control of information markets in the core, periphery, and semi-periphery. Moreover, while core societies have already begun to overcome labor opposition within the core by moving operations to more congenial and lower-cost periphery production sites, this merely displaces the problem of labor power; it by no means solves the problem. The price of cheap, disciplined labor is reliance on rigid military regimes and compradores whose loyalty is far from guaranteed.

Opposition to core capitalist control of information resources has paralleled and, in some cases, grown out of these contradictions. Chapters Two and Four offered evidence of popular disaffection resulting from the shift to explicitly private policy processes and decisions that clearly advance the interests of private capital. The thrust to deregulation, based on the drive to improve the productivity and profit of transnational corporations, is the embodiment of this shift in the information sector. The green shoots of popular disaffection are reflected in the reactions of public interest groups and coalitions of labor, women, and minority groups that oppose corporate-controlled media. As Chapter Two pointed out, these groups are recognizing the futility of using established government agencies to make the case for media that reflect more than the corporate interest. As a result, organizations like the International Association of Machinists are training their rank-and-file members to monitor television entertainment and news program-

ming critically and to attack the companies that profit from degrading working people.[3] The United Auto Workers complain that "We're always fighting these rearguard actions. We want to be involved in setting the terms for the next media debate." In order to do this, the UAW is investing heavily in media production, including the use of new distribution systems such as low-power television and satellites.[4] On the other end of the political spectrum, there is a growing movement among groups opposed to programs that affect their fundamentalist beliefs. It is unclear whether this opposition will crystallize into broad-based regional or even national strikes against media, concretely manifest in the refusal to view programs or to support media advertisers. At the moment the opposition is diffuse and more often than not contained within opposition groups so that liberal reformers find themselves in the rather dubious position of defending the broadcasting networks against fundamentalists who would systematically refuse to support program sponsors.

Whether the opposition mounts depends considerably on the results of struggles over workplace control of information resources. While it is true that new communications technologies such as videotex deepen the connection of home and workplace under capitalist control, these technologies also make that connection more *transparent* for workers who labor on these information machines in factory and office, and watch, play games, and participate in commercials on them in the home. Again though, opposition here is diffuse and somewhat divided. It ranges from an eagerness to advise on the introduction of new technologies and minimize firings to outright opposition without worker control over how they are used.

The outcome of opposition within the core depends a great deal on struggles in the global system. The experience of working at the low end of the international division of labor has begun to generate opposition within the periphery. Consider these examples from the front lines of the global factory:

- In 1975 workers in an American-owned factory in Guatemala decided to do something about their terrible working conditions. They drew up a complaint list that included wage rates below minimum, no overtime pay, and "threats of death." The American boss responded by complaining to local authorities who obliged by surrounding the factory with two fully-armed contingents of military police. The "Communists" the boss identified as instigators were rounded up and fired.[5]
- The AFL-CIO has described a Gulf+Western-controlled industrial zone in the Dominican Republic as a "modern slave labor camp." Workers who do not meet their daily production quota during a regular shift must work unpaid overtime until they do. Women are routinely strip-searched at the end of the day. In the face of this, workers tried to

unionize in 1978. The government sent in police armed with automatic weapons. Gulf+Western reinforces this with its own "motorcycle club" that terrorizes suspected union supporters.[6]

- In 1980 workers struck the two largest integrated circuit assembly contractors in the Philippines. Since strikes in the Philippines electronics industry are illegal, a number of strikers were arrested at one plant. At the other, in the face of a strong police presence, 7,500 of the 10,000 mostly women work force walked off the job and shut down Stanford Microsystems for three days to protest working conditions, including widespread supervisor harassment. Management agreed to transfer an abusive supervisor and reinstate fired workers.[7]

Paralleling the effort to unionize exploited factory workers are attempts to inform and organize exploited consumers who feel the brunt of transnational advertising for dangerous products. Consider these items from the front lines of the global supermarket:

- UNESCO estimates that one million infants in the Third World have died from the improper use (lack of clean water or money to buy more) of packaged infant formula. Nestles and other transnationsl use billboards and women dressed up like nurses (ironically called milk-nurses) to promote this substitute for breast feeding as the modern or Western way.[8]
- The intrauterine device, known as the Dalkon Shield, was withdrawn from the domestic market after it killed at least 17 women in the U.S. It is now promoted and sold in the Third World.
- The U.S. Consumer Product Safety Commission removed from the U.S. market children's garments treated with a carcinogenic flame-retardent called Tris. The manufacturer responded by stepping up the advertising and sales campaign outside the U.S.
- The anti-diarrhea medicine Lomotil is sold only by prescription in the U.S. because doses slightly higher than those recommended are fatal. It is promoted over the counter in the Sudan as the medicine the astronauts use and recommended for children as young as one year old.
- Winstrol is a synthetic male hormone found to stunt the growth of American children. It is advertised in Brazil as a children's appetite stimulant.
- The Consumer Product Safety Council proposed banning baby pacifiers because they cause choking deaths. Five U.S. manufacturers responded to the proposed ban by exporting 450,000 of them.
- The U.S. bans the injectable contraceptive Depo-Provera because it

> caused malignant tumors in animals. The Upjohn Company sells it in 70 countries where it is used in population control programs supported with funds from the U.S. government Agency for International Development.[9]

According to those who have analyzed the process of corporate dumping, the struggle is very much an information war:

> At a 1978 conference on Women and Multinational Corporations held in Des Moines, Iowa, a young Filipino woman urged the American women present to "find out everything you can" about American corporations and their products and spread the word.
>
> It's just this kind of process—what Belita Cowan of the Washington Women's Health Network calls "grass-roots-level information sharing"—that will, sooner or later, make contraceptive dumping impossible: a nurse in Guatemala writes to the Boston Women's Health Collective and gets back a packet of information on Depo-Provera; a student from South Korea attends a feminist conference in the U.S. and takes back a stack of literature on U.S. drug companies' overseas operations; a health worker in Honduras discovers Dalkon Shields in a clinic supply room and alerts the local women.
>
> So far, it can't compare with the international network AID runs or the "information sharing" drug company's public relations department can arrange. But the word is getting out.[10]

Will the link between factory and audience labor help build mass opposition to the hegemony of the capitalist information society? Will connections be built among periphery and core workers whose different degrees of exploitation have heretofore made such unions difficult to forge?

Toward Alternatives

> Radio must be changed from a means of distribution to a means of communication. Radio would be the most wonderful means of communication imaginable in public life, a huge linked system—that is to say, it would be such if it were capable not only of transmitting but of receiving, of allowing the listener not only to hear but to speak, and did not isolate him but brought him into contact. Unrealizable in this social system, realizable in another, these proposals, which are, after all, only the natural consequences of technical development, help towards the propagation and shaping of that *other* system.[11]

Fifty years ago, long before the first talk of interactive cable television and videotex, Bertolt Brecht wrote about the potential of interactive media. Today that potential remains unrealized. He would not be surprised. For in his *Theory of Radio*, Brecht recognized that such potential could only be realized in a system that promoted the use of communications to build community, not markets, to meet social needs, not profit needs. Brecht recognized that it is far too simplistic to think that fulfillment of the potential must await creation of a new system, a new set of social relations. Rather, communications technologies can be used to advance the creation of such a system, be used to participate in the process of their own re-creation.

Enzensberger has advanced Brecht's vision. Drawing on a number of traditions, including the Frankfurt critical school, Brecht and Benjamin, he outlines a positive strategy for the use of electronic, particularly interactive, media to achieve systemic social change. Figure 7–1 summarizes his views on the emancipatory potential of interactive media by juxtaposing these to the repressive uses of existing one-way systems. No technological determinist, he recognizes that technology is not the instrument of freedom and democracy. For "anyone who expects to be emancipated by technological hardware, or by a system of hardware however structured, is the victim of an obscure belief in progress."[12]

FIGURE 7–1 The social relations of media.

Repressive	*Emancipatory*
*Programs are centrally controlled.	Decentralized program control.
*There is one transmitter and many receivers.	Every receiver is a potential transmitter.
*The media immobilize and isolate people into masses.	The media are used to mobilize people.
*The media promote passive consumers.	The media promote interaction among primary transmitters and receivers.
*The media depoliticize people.	The media promote active participation in the daily political process.
*Production is by specialists.	There is collective production.
*The media are controlled by property owners and bureaucrats.	The media are publicly controlled.

Source: Hans Enzenberger, *The Consciousness Industry*. New York: Seabury, 1974, p. 113.

Nevertheless, he outlines a strategy for popular use that draws on the technology with due recognition that the existing powers will not readily condone such uses:

> Tape recorders, ordinary cameras, and movie cameras are already extensively owned by wage-earners. The question is why these means of

production do not turn up at factories, in schools, in the offices of the bureaucracy, in short, everywhere where there is social conflict. By producing aggressive forms of publicity which were their own, the masses could secure evidence of their daily experiences and draw effective lessons from them.

Naturally, bourgeois society defends itself against such prospects with a battery of legal measures. It bases itself on the law of trespass, on

> commercial and official secrecy. While its secret services penetrate everywhere and plug in to the most intimate conversations, it pleads a touching concern for confidentiality, and makes a sensitive display of worry about the question of privacy when all that is private is the interest of the exploiters. Only a collective, organized effort can tear down these paper walls.[13]

This strategy exploits a fundamental contradiction in capitalist media systems. Such media are not attractive, as critics from Vance Packard to John Kenneth Galbraith have argued, because they *create* false needs.[14] Rather, they attract people because they falsify and exploit quite *real* needs. Cosmetics, cars, breakfast cereal, and cigarettes will all satisfy the need for sex, community spirit, and family security. The obvious contradiction is that the promises of such ads cannot be realized. The inability to deliver on promises may over time frustrate even further the unmet need. Hence, Enzensberger concludes:

> A socialist movement ought not to denounce these needs, but take them seriously, investigate them, and make them politically productive.[15]

The most substantial difficulty in discussing the potential of alternatives is that there is very little in the historical record from which to draw lessons. Perhaps the most advanced use of the Brecht-Enzensberger vision is in the network of socialist radio stations in Italy. Following a 1976 Constitutional Court decision that the RAI (Radio Audizioni Italia, a BBC-like organization) monopoly over local broadcasting was unconstitutional, broadcasting expanded throughout Italy. Per capita radio and television stations surpassed that of the United States. More importantly, there was far more diversity. Radio stations sprang up supporting the special interests of socialists, communists, Catholics, feminists, immigrants, and others. A network of left party and feminist stations formed an 80-station system, the National Federation of Democratic Radio Stations.

In a critical evaluation of socialist radio in Italy, Downing points out the significance of an inexpensive, mobile communications device for building an opposition movement. Such media are no substitute for the movement itself, but given at least the core of one, radio can inform, strengthen ties

among members and mobilize new participants. This is particularly the case in those stations that make use of the telephone. Downing contrasts the radio talk-show format popular in the United States where stations, under the constant commercial pressure to build audiences, retain tight control over what is said, through delay devices and "hosts" who confront callers with "something resembling numbered blank squares which have to be filled in with the single correct answer."[16] According to Downing

> By contrast, from a revolutionary radio perspective, the telephone means that a studio is not essential for public debate on radio. . . . Radio Mantova at one time used to ring up leading politicians and try to get them to answer questions on the air. People can read their poetry over the air, sing songs, sometimes speak from their workplaces. Radio fulfills Brecht's vision of a "colossal canal-system."[17]

In more dramatic instances, radio serves a pressing political need, as when Radio Alice was used during the 1977 uprising in Bologna. This station, described as a "guerilla electronic tom-tom" relayed information from phone booths to demonstrators about police positions and movements.

Downing suggests that the democratic organization of these radio stations have been critical to their success. The freshness of the material broadcast and the diversity of information and entertainment presented, owe a great deal to the emphasis on open membership and decentralized decision making. Of course, lack of funds, police harassment (the police shut down Radio Alice), and internal political differences create problems. But, as Downing sums up, "it indicates how some of Brecht's glimpses of the possibilities existing in radio may be realized, consolidated, and vastly extended."[18]

Another extension of Brecht's vision is the use of computer/communications during the 34-month period that the Allende government held power in Chile. One analyst refers to the Popular Unity government's Project Cybersyn as "probably the most ambitious attempt to date to use a computerized telecommunications system as an integral part of a strategy of social transformation."[19] The project comprised a data communications system that processed information on economic performance from all parts of the country in a central computer. This synthetic picture of the economy was rapidly circulated to workers' councils at work sites throughout Chile so that they could make autonomous decisions in their area of concern.

Led by Stafford Beer, a management specialist, and a group of engineers, psychologists, and organizers, the project had a three-fold purpose. First, it was to increase the efficiency of the newly nationalized sectors of the Chilean economy. Second, it was to protect the economy against the CIA-backed right wing. Finally, it sought to greatly expand popular participation in the management of Chile's economic life.[20]

The last point is most significant because the general goal of eliminating the necessity of a managerial class is not something that socialist and communist societies have had much success in accomplishing. The multi-leveled recursive nature of the Cybessyn project was critical to the hoped-for achievement of this objective. According to Athanasiou:

> The programs themselves were in no way geared to centralized control of a national economy, being as suited to the monitoring and analysis of an individual workplace as they were to an entire national, or even global economy. . . .
>
> For example, if the production of a particular factory began to fall off, this fact was not immediately reported upward to the next level of social recursion, but was first reported only to the committees responsible for the management of that factory itself. It was only after a perturbation had gone uncorrected for a longer period of time that it would be reported upward. Thus each sector of the economy was able to remain linked to the ones immediately above and below it without being so strongly tied as to render impossible any real degree of local autonomy.[21]

But of even greater significance was the extent of political commitment on the part of workers. A study conducted in the last six months of the Popular Unity government determined that

> the factories where workers were mobilized prior to socialization and more actively involved in the process of the factory's passage into the "social area" were the factories with the highest level of worker participation. Factories which were socialized through a bureaucratic decree or with little worker involvement had lower levels of worker participation after socialization.[22]

Of course, the project could not be implemented fully. The U.S. economic embargo of the Chilean economy prevented computer parts from arriving in Chile. Ultimately, the military junta ended the experiment in worker control through computer communications. In fact, General Pinochet made use of the computer system, supplied with no longer embargoed parts, to assist his program to root out opposition and centralize dictatorial control.[23]

Perhaps even more sadly ironic than this is that the fall of the Popular Unity government can be attributed in part to its failure to assert popular control over another sector of the Chilean communications industry, mass media. While there is debate about the motives and wisdom of participants in the Cybersyn project, there is little question that it represented a unique effort to redefine the social relations of technology and use them to transform

a society. But while this was taking place, Popular Unity permitted capitalist-controlled media to carry on an inflammatory attack against the elected government that few U.S. administrations would tolerate, particularly with the country under economic and political attack from the United States. The daily attacks from capitalist-controlled newspapers led by *El Mercurio* and commercial television stations, which actually grew more commercial during the Popular Unity years, made development more difficult but also made Chile unique in its expression of pluralism and free information flows. This policy won few friends in the U.S. and other core societies that proceeded to support the Pinochet junta and its rigid censorship. Herbert Schiller summarizes well the lessons from this experience:

> Pluralism in communication conceals class domination. What that domination is seriously threatened, pluralism is rejected by those who usually extol its virtues. . . .
>
> The obligation to defend the nation's informational-cultural sovereignty is not a call to narrow provincialism and compartmentalization. It is an assertion of resistance to the penetrative power of the multinational corporations. Consequently, *national* and *socialist* cultural policies are an essential prerequisite of cultural integrity.
>
> Heightened individual consciousness is both an essential element in and the outgrowth of the liberating/revolutionary process. It is not an automatic benefit of improved or sophisticated new communications technology. . . . Participation may be the only means of developing and maintaining individual and group consciousness and thus keeping alive the dynamic of change and renewal.[24]

Dallas Smythe specifies this last point by emphasizing the need for local control, even if that means giving up the tempting urge to buy, borrow, or merely accept the "high technology" offered by core powers:

> An absolute requirement is that they must own, control and operate their own communications systems. Their control of these systems is vital to their independence as control of their military capability. Even more so, because foreign control of communications is a Trojan horse which can immobilize their military and produce dependency directly. Their communications equipment emphatically need not be "high technology" stuff (computers and data banks, interactive television, videotext, etc.). Recall that the overthrow of the Shah of Iran required no more equipment than cassette tapes, the telephone and xerox, which together with mosques, festivals (the *takyeh*), meetings (the *doreh*), and the bazaar, did the trick.[25]

Green shoots like those that grew in Chile for 34 months are very fragile indeed. To only support the growth of some is to leave the entire patch open to decimation.

There are few green shoots among the nations promoting videotex most vigorously. Among them, Canada has devoted most thought and attention to developing alternatives to commercial business applications. This is not to suggest that the Canadian government is uninterested in promoting the business use of videotex. In fact, the first non-test use of the Department of Communications Telidon system is for Canadian agribusiness. This is how a promotional brochure describes Grassroots:

> Grassroots is the world's first commercial Telidon service. People working in western Canadian agribusiness will be the first to have access to it. The information it contains will be directed exclusively to agribusiness. It will have enormous impact on the way you do business. And it holds the potential to keep you in the forefront of global agricultural competition.

Nevertheless, the Canadian government was first to acknowledge publicly the dangers inherent in leaving the control of information to private business. At the same time that U.S. business interests were preparing the push for deregulation, in 1971 the Canadian government issued its *Instant World* report which recognized that "market force" control would severely restrict interactive telecommunications:

> Virtually all the new applications of computer/communications integration expected to become available during the next few years are likely to be oriented to business and industry or to protection of property. Some cynics would suggest that all the fine sounding social and personal benefits that are being predicted are no more than pie in the sky and, if developments are to be controlled only by market forces they may well prove to be right.[26]

Indeed, the report concluded that privatized information control opened the way to a form of censorship:

> . . . if the storage and availability of valuable information is left entirely to private enterprise, a financial interest is likely to be created in that part of the information that has a realizable commercial value, while wide areas of socially valuable information may not be available at all.[27]

In 1976 the Science Council of Canada concluded that bodies such as the Canadian Radio Telecommunications Commission (CRTC) would be respon-

sible for ensuring not the free play of market forces, but "that access to communications technologies is available as broadly as possible, including, of course, to all age groups."[28] Finally, Canadian research has developed innovative, though not necessarily commercially-oriented, functions for videotex. These include:

- medicine: distant diagnosis, medical record access, information on birth control, pregnancy, poison control, general first aid, common children's ailments;
- law: basic contract rights, small claims court information, legal fees;
- employment: job descriptions, job candidates;
- education: self-paced learning particularly for rural and older people;
- consumer: food market prices, house rentals, interest rates, repair costs[29]

Others have made similar suggestions. But the emphasis here is more heavily weighted than in the rest of the videotex world on public access and control. Thus, while the Science Council touts telemedicine, it emphasizes that "the technological innovations should proceed in tandem with programs to ensure that accessibility is not an empty prase."[30] A 1981 report puts it more emphatically:

> . . . those individuals who would benefit from the use of Telidon particularly as an instrument of social welfare—the elderly, the physically handicapped, the economically and geographically deprived—would, under the dictates of pure market pressure, be the *last* people to be granted access to the system. In such a scheme, there may well be a ghost in the machine, but it is the ghost of unfettered capitalism and it does not have a conscience.[31]

Canada has translated this concern for expanding videotex use beyond marketplace constraints by establishing a number of public interest projects. As Chapter Three indicated, the federal Department of Communications has actively promoted videotex development. One vehicle for this promotion is the Canadian Videotex Consultative Committee (CVCC), a group representing diverse interests in videotex that reports directly to the Minister of Communications. The CVCC has formed a number of subcommittees including ones on the Individual and Society and on Education. The former is concerned with the public uses and social impacts of videotex. This subcommittee has commissioned studies and conducted workshops on

> the means to insure diversity of information sources for videotex; the

means of promoting widespread access to information providing facilities; the privacy implications of videotex and the significance of the system for groups and individuals with special communications needs.[32]

The CVCC Education subcommittee is coordinating the interests of schools across Canada in the application of videotex to instruction. It has been particularly active in Ontario where the Ontario Educational Communications Authority (OECA) began a Telidon field trial in September 1980. The Ontario project is a composite experiment consisting of teletext and videotex applications using conventional as well as cable- and satellite-distribution networks. Telidon terminals are set up in schools, libraries, science museums, and individual homes. According to the project manager, "the initial aim will be to expose educational information providers to the system and encourage them to create educational content. Some public exposure will be obtained through libraries, museums, and home use.[33] In conjunction with OECA, TV Ontario, the unique provincewide educational broadcaster, has experimented with videotex applications. TVO has broadcast a sample teletext magazine along with its regular programming since January 1980. Network penetration is about 85% of Ontario's population. In order to serve remote areas in the north, conventional distribution is augmented by about 50 earth stations receiving TVO broadcast and teletext signals through the ANIK-B satellite.

In addition to these projects, the federal government has set up a Task Force on Services to the Public and charged it with promoting widespread public access to government services and information. The Task Force plans a national trial that would distribute terminals across Canada in post offices, shopping centers, and government offices. On a more local level, community groups in Toronto, Montreal, and Quebec City are serving as "information brokers" to represent local interests who want to receive or provide public information. For example, in Toronto, the Community Information Center is designing a health-related information package for use on the Vista videotex trial.[34]

These and other public uses of videotex across Canada are far from revolutionary. Nevertheless, they represent departures from the hard-line market orientation that is clearly the case in the U.S. and Great Britain. It is easy to speculate, though difficult to be certain, about why Canadian videotex is developing these alternative uses. Certainly the geopolitics of Canadian communications has something to do with it. Canadians are concentrated on a strip of land within easy access of U.S. media. A minority of the population is scattered in remote regions of the huge Canadian land mass. These facts have sensitized many Canadians to the dangers of cultural imperialism and the need to develop national policies to promote some

degree of sovereignty. As Smythe and others have shown, those who have fought for strong action in the past have met with little success.[35] Nevertheless, since such sentiments are fairly widespread, particularly among Canadian academic and cultural elites, they are a force that the Canadian government must address. Widespread distribution of videotex services is one way of doing so. Furthermore, the Canadian government recognizes that videotex can provide the country with a profitable niche in the global electronic communications industry. Underwriting public uses is a way to build national support as well as test alternative systems and services.

Again, a number of public interest services are certainly not the prelude to media democracy. But the contradictions inherent in Canada's position—a developed society deeply dependent on the U.S. economy—open up a few possibilities from which those interested in using media for social transformation can learn a lot. Do people make use of the public information that Telidon provides? How do they use it? What is the impact of placing Telidon devices in public places? There is no way to answer these questions in the United States because corporate capital completely controls the uses to which videotex is put. The Canadian media structure provides just enough space to help us begin to answer these and other questions vital to using electronic media for democratic change.

The French government is creating the potential for alternative uses by laying a national infrastructure for interactive telecommunications. However, little effort has gone into developing alternatives to proposed business information services such as the national electronic ad system. Furthermore, the highly centralized nature of the French program in telematics makes it difficult to envision projects that might take advantage of the unique capabilities of videotex for meeting local community needs. Nevertheless, the Mitterand government is reconsidering the relationship of the French state to mass media and telecommunications. Efforts are underway to liberalize the traditionally close connection between the state and mass media in France.[36] Moreover, there is increasing support for reopening the issue of government involvement in telematics. Before imposing videotex devices such as the electronic directory on the French public, Mitterand is considering a general debate in the French assembly.[37] It is hard to say whether this signals a change of course and, if so, what direction it will take. It may be a prelude to more decentralized public control over media and telecommunications. On the other hand, removing the strong government role in leading French telematics may open the way to deeper penetration by transnational capital.[38]

British and U.S. videotex projects are almost without exception commercial operations geared to the business uses of videotex.[39] Amidst the onslaught of deregulation and commercialization, public interest and consumer-oriented groups in the U.S. have offered proposals to ameliorate

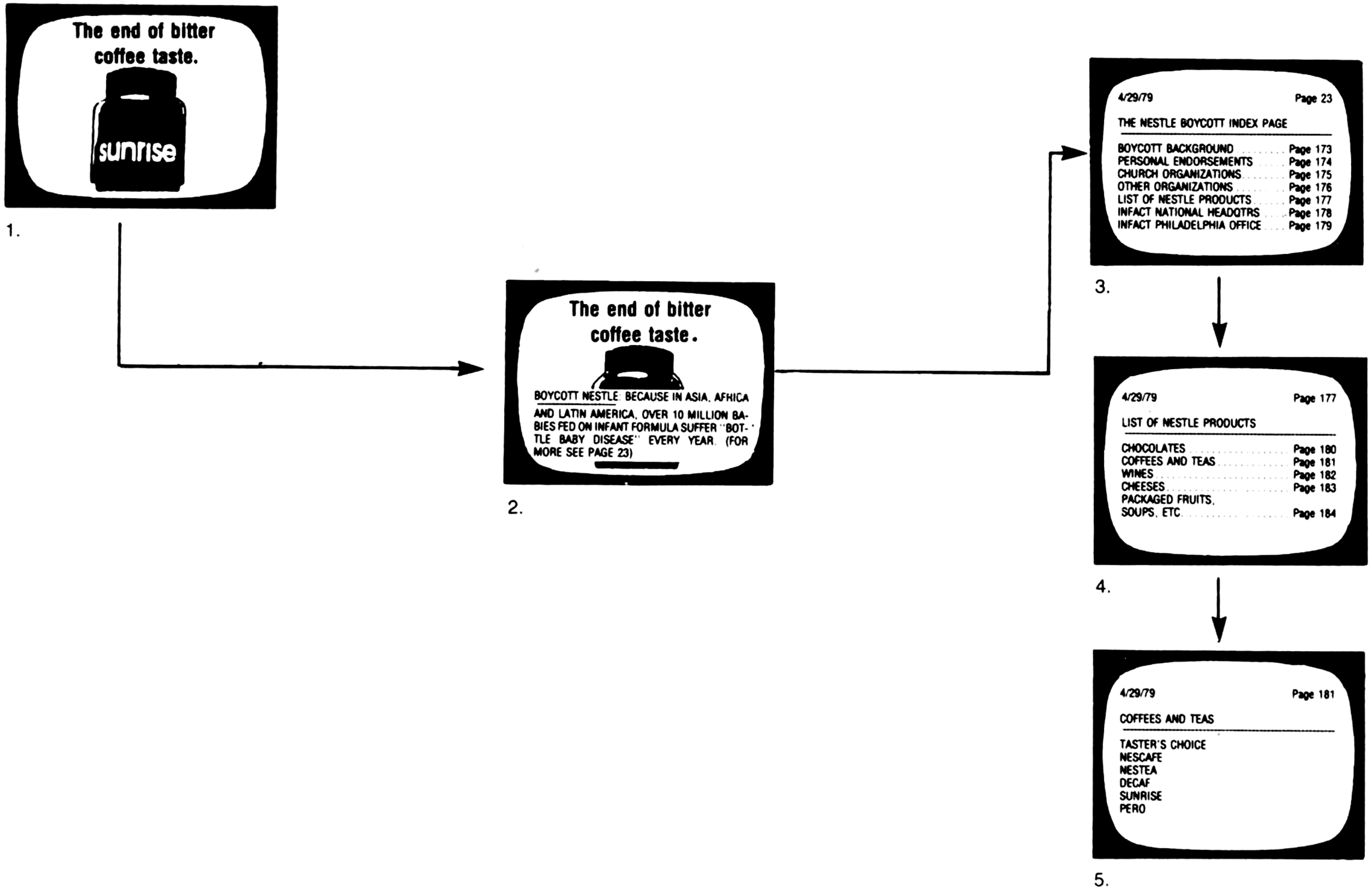
some of the destructive impact that this book has described and advance some measure of public gain. For example, the National Citizens Committee for Broadcasting proposed this eight-point plan to advance community uses of videotex at a White House Conference on Libraries and Information:

1. Place computer terminals in community centers and libraries where individuals have ready access and can obtain help in developing individual technology literacy.
2. Provide public libraries with all on-line data bank information services that the Library of Congress offers.
3. Develop a local computer-based legislative reference service on legislative actions on local problems.
4. Develop community information data bases with demographic and other information readily available to local residents.
5. Create demonstration projects to develop computer experience and literacy among primary and secondary school children.
6. Establish educational programs on new information technologies for nonprofit organizations, government workers, small business people, and the leaders of community-based groups.
7. Create an Advocacy Project that advances the public interest on a major policy issue in the application of new information technologies.
8. Create a group to actively pursue implementation of these proposals and to explore similar projects and needs.[40]

Reflecting the strong desire of commercialization in U.S. media, consumer interests have proposed not preventing advertising, but incorporating public interest messages along with videotex advertising as part of a commercial "fee." One response to the informercial is a proposal that videotex advertising contain frames designed to provide counter-commercials. (Figure 7–2)

These proposals are interesting. But, modest as they are, they remain mere proposals. That even these minimal suggestions to ameliorate the profound gap that videotex and information technologies are creating between the information rich and poor have gained little headway testifies to the strength of private corporate control over information resources and the state. Moreover, it is hard to imagine the same government that acted to eliminate alternative media in the United States now supporting substantial public access to and control over information technologies such as videotex, even though it might promote computer literacy as a way of subsidizing corporate needs for a competent worker/consumer labor force.[41]

FIGURE 7–2 The Counter-Commercial.


The end of bitter coffee taste.
sunrise
1.
The end of bitter coffee taste.
BOYCOTT NESTLE. BECAUSE IN ASIA, AFRICA AND LATIN AMERICA, OVER 10 MILLION BABIES FED ON INFANT FORMULA SUFFER "BOTTLE BABY DISEASE" EVERY YEAR. (FOR MORE SEE PAGE 23)
2.
4/29/79 Page 23
THE NESTLE BOYCOTT INDEX PAGE
BOYCOTT BACKGROUND ..... Page 173
PERSONAL ENDORSEMENTS ..... Page 174
CHURCH ORGANIZATIONS ..... Page 175
OTHER ORGANIZATIONS ..... Page 176
LIST OF NESTLE PRODUCTS ..... Page 177
INFACT NATIONAL HEADQTRS ..... Page 178
INFACT PHILADELPHIA OFFICE ..... Page 179
3.
4/29/79 Page 177
LIST OF NESTLE PRODUCTS
CHOCOLATES ..... Page 180
COFFEES AND TEAS ..... Page 181
WINES ..... Page 182
CHEESES ..... Page 183
PACKAGED FRUITS, SOUPS, ETC ..... Page 184
4.
4/29/79 Page 181
COFFEES AND TEAS
TASTER'S CHOICE
NESCAFE
NESTEA
DECAF
SUNRISE
PERO
5.

Source: Albert S. Tedesco and F. Anthony Bushman, "Teletext in the Public Interest: The Case of New Consumer Information Services." Paper presented at the Institute for the Future Workshop on Teletext and Viewdata, June 20–22, 1979, Pajaro Dunes, CA, p. 5.

Nevertheless, the struggle for control is far from over. Indeed, it will be sharpened in all likelihood in the years to come. This book has examined the stakes in that struggle. They are nothing short of control over the production and distribution of information resources and, by extension, the shape of societies and social relations in the years to come. Furthermore, this book has examined the dangers that a corporate-controlled system contains for the workplace and the home, in core and periphery. Moreover, it has pointed to the thoughts and actions of those who seek to create alternatives. In that respect this book is part of the struggle to achieve democratic control and an equitable distribution of information. It anticipates a time when these goals are more than visions, more than pushbutton fantasies.

Footnotes

[1]L. S. Stavrianos, *The Promise of the Coming Dark Age*, San Francisco, CA: W. H. Freeman, 1976, p. 196.

[2]It is hard to say whether Stavrianos is himself still so sure. In his latest book, *Global Rift*, New York: Morrow, 1981, he examines in tremendous depth (the book runs to 900 pages) the impact of imperialism on the history of the Third World. Nevertheless, the final chapter, "A Common Vision," reflects his hope that people in core and periphery will recognize their common dependent plight and work together to overturn a world controlled by transnational capital.

[3]See Chapter 2, footnote 80.

[4]*Access* (June 1, 1981), p. 3.

[5]Barbara Ehrenreich and Annette Fuentes, "Life on the Global Assembly Line," *Ms*, January 1981, p. 58.

[6]*Ibid*.

[7]Pacific Studies Center, *Global Electronics Information Newsletter*, September–October 1980, (4), p. 1.

[8]Barbara Garson, *The Bottle Baby Scandal*, Somerville, MA: New England Free Press, 1979.

[9]The source for each of the references other than that on infant formula is Mark Dowie, "The Corporate Crime of the Century," *Mother Jones*, November 1979, p. 24.

[10]Barbara Ehrenreich, Mark Dowie, and Stephen Minkin, "The Charge: Gynocide, The Accused: The U.S. Government," *Mother Jones*, November 1979, p. 37.

[11]Bertolt Brecht, "Theory of Radio," cited in Hans Enzensberger, *The Consciousness Industry*, New York: Seabury, 1974, p. 98.

[12]Hans Enzensberger, *The Consciousness Industry*, op. cit., p. 109.

[13]*Ibid*., pp. 109–110.

[14]John Kenneth Galbraith, *The Affluent Society*, Boston, MA: Houghton Mifflin, 1958; Vance Packard, *The Hidden Persuaders*, New York: David McKay, 1958.

[15]Enzensberger, op, cit., p. 110.

[16]John Downing, *The Media Machine*, London: Pluto Press, 1980, p. 207.

[17]*Ibid*., pp. 207–208.

[18]*Ibid*., p. 217.

[19]Tom Athanasiou, "Stafford Beer: The Untechnocrat and His Liberty Machine," *The Journal of Community Communications*, Spring 1979, *III* (2), p. 1.

[20]*Ibid.*, p. 8.

[21]*Ibid.*, p. 12.

[22]Andrew Zimbalist and James Petras, *Workers' Control in Allende's Chile*, cited in Athanasiou, p. 9.

[23]*Ibid.*, p. 6.

[24]Herbert I. Schiller, *Communication and Cultural Domination*, White Plains, NY: International Arts and Sciences, 1976, pp. 108–109.

[25]Dallas Smythe, "On Thinking the Unthinkable about Nuclear War and its Consequences for the Peace Movement." (Paper presented at the meeting of the International Peace Research Association, Orillia, Ontario, June 1981, p. 36.)

[26]Government of Canada, *Instant World: A Report on Telecommunications in Canada*, Ottawa: Information Canada, 1971.

[27]*Ibid.*, p. 51.

[28]Chris Dornan and Diane Wells, *Videotex Availability to Users*, Montreal: McGill University, Graduate Program in Communications, 1981, unpublished ms., p. 20.

[29]*Ibid.*, pp. 15–16. See also Science Council of Canada, *Science for Health Services*, Ottawa: Information Canada, 1974.

[30]Science Council of Canada, *Perceptions 2: Implications of the Changing Age Structure of the Canadian Population*, Ottawa: Minister of Supply and Services, 1976, p. 75.

[31]Dornan and Wells, *Videotex Availability to Users*, op. cit., p. 14.

[32]J. L. Campbell and M. Gurstein, "Social Impact/Social Uses of Videotex in the Canadian Context," *Videotex '81*, Northwood Hills, UK: Online Conferences, Ltd., 1981, p. 326.

[33]Maria Cioni, "Telidon and Education in Canada," *Vista Directory and User Guide*, May 1981, M-21.

[34]Campbell and Gurstein, op. cit., p. 328.

[35]Dallas Smythe, *Dependency Road*, Norwood, NJ: Ablex, 1981.

[36]Richard Eder, "Socialists Loosen the Knots that Bind French TV," *The New York Times*, October 30, 1981.

[37]"Can 30m French Terminals be Wrong," *The Economist*, August 22, 1981, p. 20.

[38]In fact, the telematics industry in France is already under extensive foreign control. According to the French Ministry of Industry, the Office machinery, computers, and data processing industry is the one most deeply under foreign dominance of all the industries in France. Moreover, of the five leading trading nations of the world (the U.S., UK, Japan, West Germany, and France), France is the most heavily controlled by foreign capital. See *Multinational Monitor*, September 1981, pp. 15–16.

[39]For a report on the few British developments in public interest videotex, see Michael R. Real, *Videotex and Education: A Review of British Developments*, San Diego, CA: Center for Communications, San Diego State University, September 1981.

[40]National Citizens Committee for Broadcasting, *Final Report on New Communication and Information Technologies and their Application to Individual and Community Uses to the White House Conference on Library and Information Services*, July 1979, Washington, DC, p. 4.

[41]See Chapter Two and Geoffrey Rips, *The Campaign Against the Underground Press*, San Francisco, CA: City Lights Books, 1981.

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